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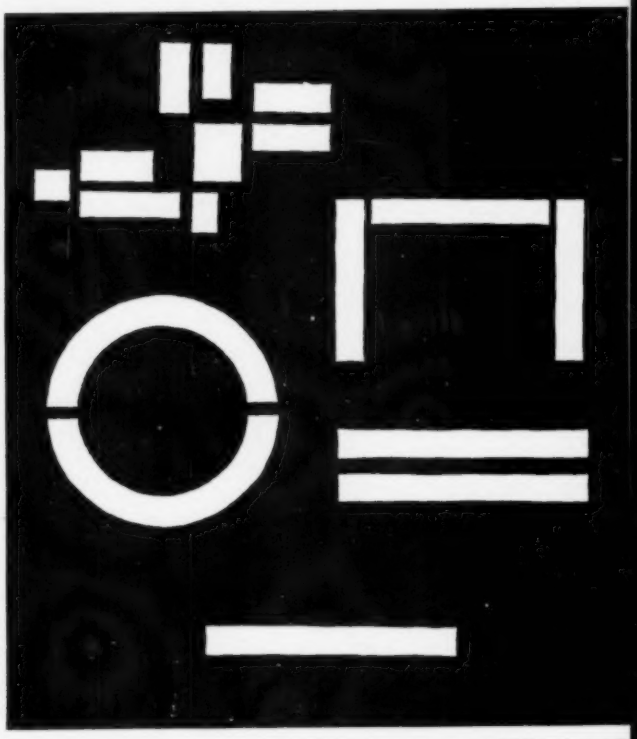

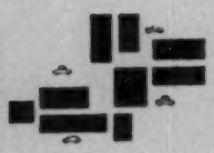

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june 1952

shopping centers

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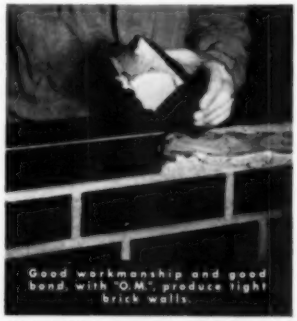

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PROGRESSIVE ARCHITECTURE

pa

June 1952

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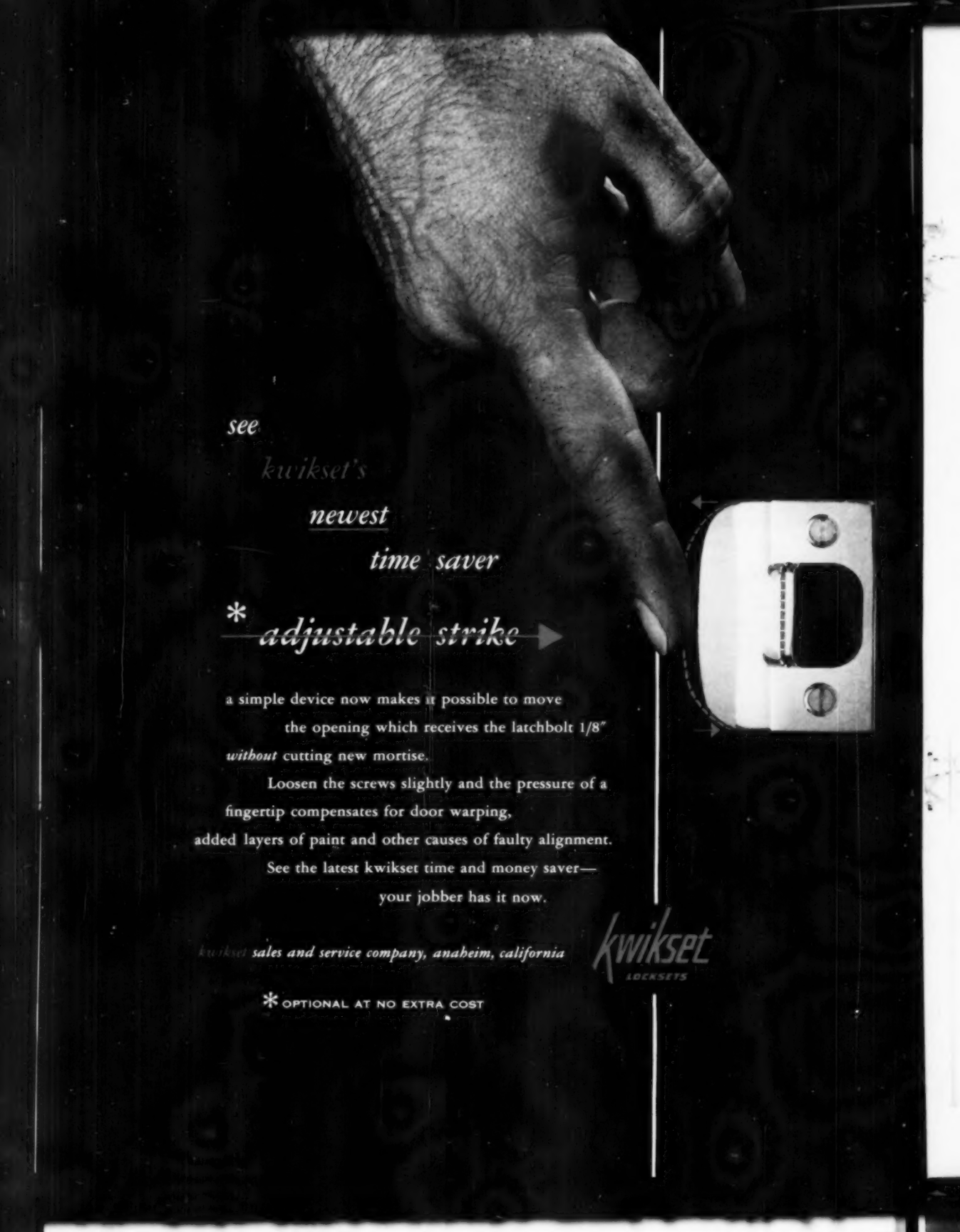
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pa newsletter

June 1952

Search for Deans and Heads of Schools of Architecture still goes on with several important posts not yet filled. One has been, however: Princeton University announces that Robert W. McLaughlin, Jr., who has been Arthur Holden's partner for some years and before that did much research in prefabrication and founded American Homes, Inc., is new Director of the School of Architecture, succeeding Sherley Morgan. Jean Labatut, who has headed design at Princeton, becomes Director of Graduate Studies in the School.

Sumner Spaulding, Los Angeles architect who had become known nationally, not only for his work (through the firm of Spaulding & Rex in recent years) but as well for his interest in matters of housing and urban redevelopment, died recently, at the age of 59. He will be missed by many at this year's A.I.A. Convention; he was an active Institute member and a past president of the Southern California Chapter.

A progress report on school facilities has just been issued by FSA, Office of Education. Interesting data disclosed in reports from 25 states: 39% of plants are one-room schools; 16% of schools are over 50 years old; only 13% of classrooms allow more than 30 sq. ft. per pupil; 20% of pupils are housed in schools not meeting adequate fire-safety conditions.

Two localities celebrated "Architects' Week" recently: Texas (April 7 to 13), and Philadelphia (April 28 to May 5). The Texas statewide celebration was marked by exhibitions, radio programs, and other special events. The Philadelphia occasion was to mark a regional A.I.A. meeting in that city.

Senator Bricker (R, Ohio) has persuaded Senate Banking and Currency Committee to adopt proposal to exempt architects, engineers, and accountants from wage stabilization requirements.

Report from HHFA indicates that cities using Housing Act of 1949 redevelopment provisions are replacing cleared structures in blighted areas with housing rather than commerce. In 54 reclaimed urban centers 47 new projects are predominantly residential, two are mixed residential, commercial and industrial, and five are predominantly open.

Two symposia on the relationship of building to atomic explosions will be held this month. M.I.T. (June 16 and 17) will study problems of building for the atomic age; U. of California (June 26 to June 28) will discuss earthquake and blast effects on structures.

More peaceful study is being sponsored at U. of Illinois Small Homes Council by Lumber Dealers' Research Council. New grant will allow research on design and manufacture of windows, from vent problems to assembly and installation methods.

New group of stainless steels, introduced commercially last year, conserve nickel by using manganese as alloy. Allegheny Ludlum reports that they are suitable alternates for the 18-8 stainless products which have become short because of nickel situation.

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ABP ABC

newsletter

The 1952 Convention of the American Institute of Architects will be held in New York this month. Largest attendance yet at any A.I.A. Convention is expected and a program has been arranged that should make the four days (June 23-27) memorable ones for the delegates and visitors who will gather.

Convention theme is the importance of building design in forming human environment. Seminar sessions will carry this theme forward through discussions of construction methods and techniques. A building product exhibit will document available materials and equipment. Another exhibit in Lever House will show engineering contributions to architectural design.

Arthur C. Holden, New York District Regional Director, is Convention Chairman and has been busy on arrangements for many months. Museums, libraries, schools, and societies have been co-operative in scheduling special events. Social activities will be varied and interesting—including a special performance of "The King and I" for benefit of The American Architectural Foundation. President's Reception will be at The Cloisters in Fort Tryon Park.

Election of Institute officers will probably find Glenn Stanton, Oregon architect who has functioned ably for the past year, succeeding himself as president, with some changes in other offices. Four Regional Directors will be elected, with interesting contests. Thirty-nine will be named Fellows.

Gold Medal of the Institute will go to Auguste Perret, French architect who contributed so much to rational use of reinforced concrete. Perret, 77 years old, is currently active on his country's reconstruction program. Craftsmanship Medal goes to George Nakashima, architecturally-trained furniture craftsman, whose designs for factory manufacture will be subject of a special show at Knoll Associates' showroom during the Convention.

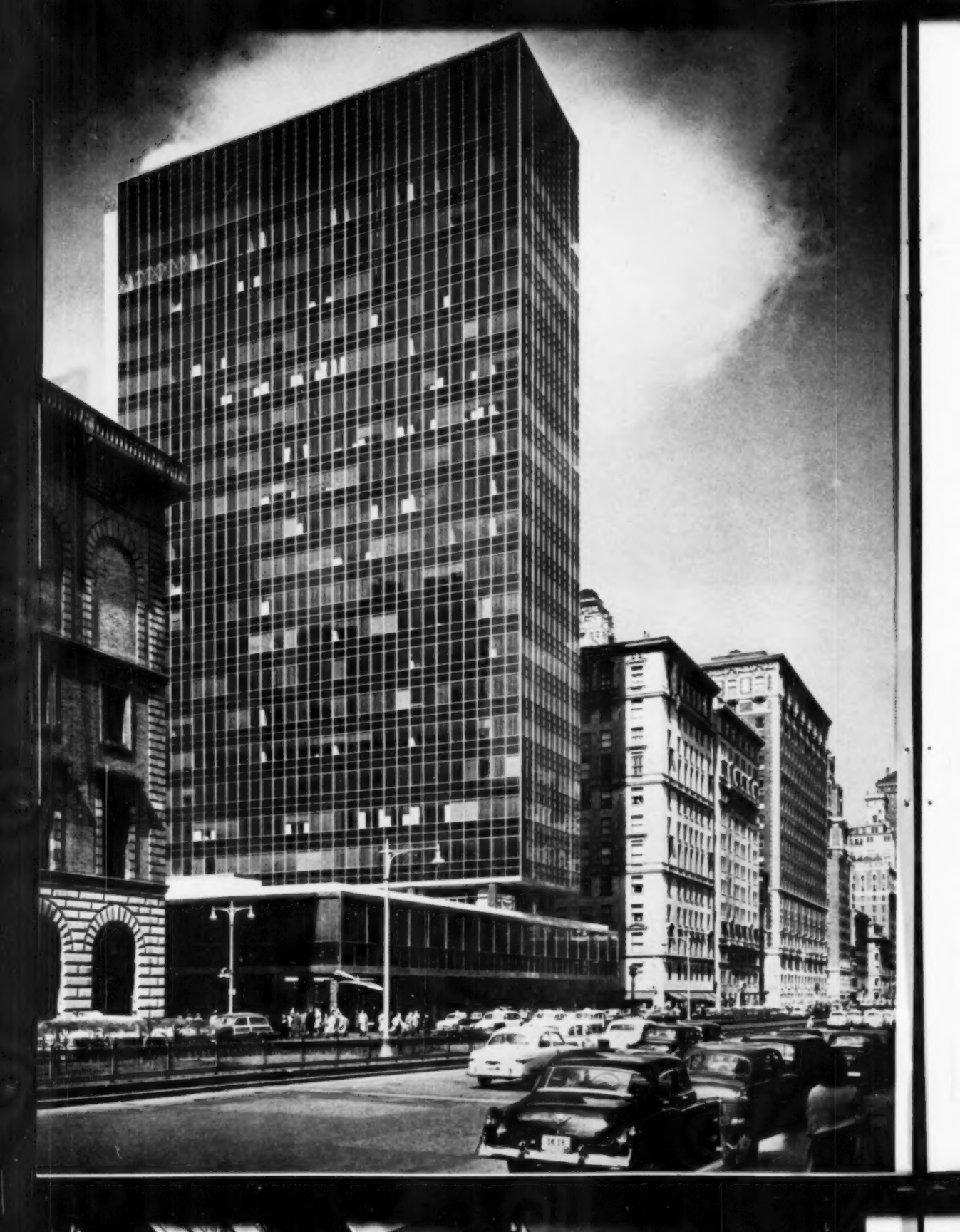
There will be plenty of opportunity for visitors to study New York's architecture. New mid-town buildings, housing groups, and parkway systems as well as worthwhile historic monuments will be seen and visited by means of several tours and boat trips that are being arranged, with aid of Robert Moses in his various roles.

To assist the delegates in determining what buildings they want to see and to give them some architectural information about the city of New York, PROGRESSIVE ARCHITECTURE *and the Architectural Book Division of Reinhold Publishing Corporation have arranged to publish a brochure—"Guide to New York Architecture"—the text of which is being written by Huson Jackson, New York architect, under terms of a Brunner Fellowship from the New York Chapter, A.I.A. With the co-operation of The Municipal Art Society and the Society of Architectural Historians, New York Chapter, Jackson has prepared a preliminary discussion of New York architecture, as first stage in a longer evaluation he is making as a Brunner Fellow, under a grant from the New York Chapter, A.I.A. This brochure will be printed and distributed to the A.I.A. Convention delegates by Reinhold.*

To illustrate the brochure, Samuel H. Gottscho, photographer who has devoted his life to architectural subjects in and around New York, has made a series of special pictures. Some of these are presented on the following six pages, as invitation and welcome to the Convention.

U. N. Headquarters, 1950-; Wallace K. Harrison, Director of Planning

Roger Morris Mansion, c. 1765; restored in 1810 by Stephen Jumel



St. Paul's Chapel, 1764-66: James McBean, Architect

Lever House, 1952: Skidmore, Owings & Merrill (acrosspage)

Manhattan House, 1951: Skidmore, Owings & Merrill and Mayer & Whittlesey

Washington Square North, 1830: Martin Thompson, Architect (facade)

Van Cortland House, 1746

Cast-Iron Building, 1848: James Bogardus, Architect

Photos: Gottscho-Schleisner

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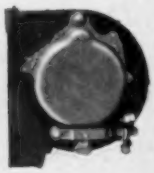

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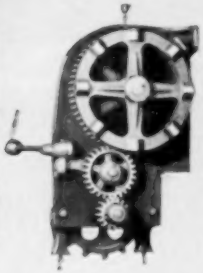

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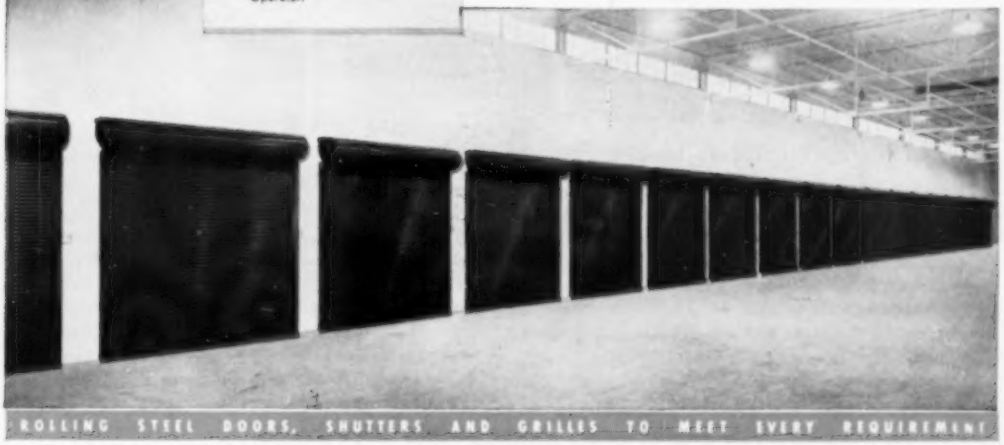

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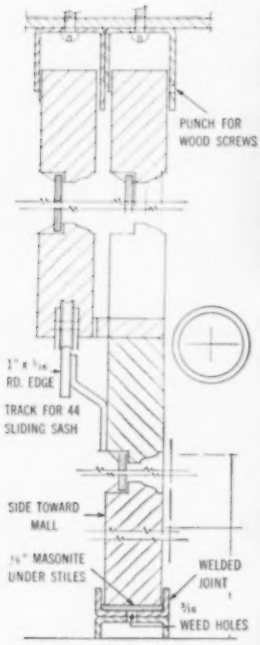

Section through sliding storm windows, upper level walkway.

Shoppers' World, Framingham, Mass. Walkways open for summer (above); closed for winter (below).

Ketchum, Gina & Sharp, principal architects

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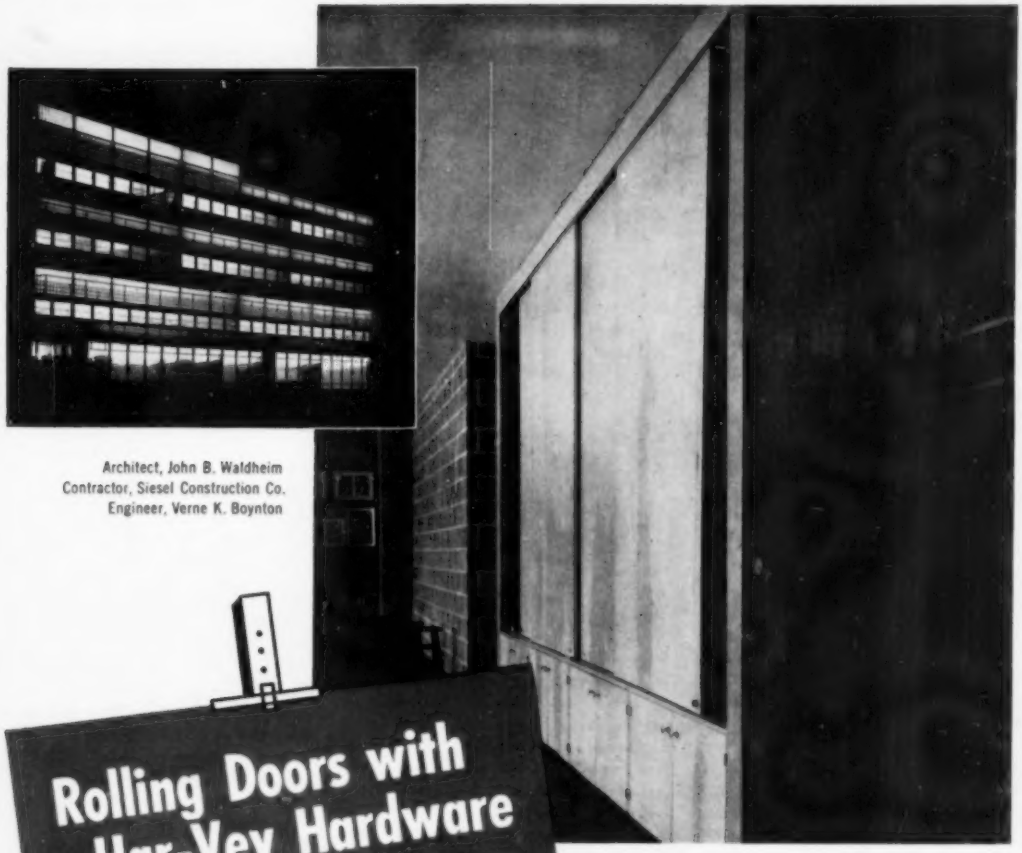
Architect, John B. Waldheim
Contractor, Siesel Construction Co.
Engineer, Verne K. Boynton



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architects show interest in registration problem

profession's need

Dear Editor: I have enjoyed reading Bernard Tomson's comments on the need for reconciling the divergency of registration requirements for architects throughout the nation. His plea that a group of experienced and well-informed persons in the field of registration should get together to study the problem is in my opinion well made.

While the NCARB has this constantly under its consideration, its annual national meetings are so filled with business pressing for their immediate consideration, I can readily understand that the long-range considerations Tomson insists should be investigated cannot be dwelt upon adequately. We have found in our study on education and registration, which is now coming to a close, that progress is made slowly.

However, the tendency of architects to practice in more than one state is borne out in my address to the national A.I.A. convention in Chicago last May, when I reported that 19% of the profession practiced in two states, 14% in from three to five states, and 2% in six states or more. Hence, the profession itself should urge studies leading to adoption of Tomson's recommendation.

EDWIN S. BURDELL
New York, N. Y.

precedent set

Dear Editor: Hail to Georgia! This sets a precedent to be aimed for by many states. P/A printed a good article, full of meaty information, not just opinions.

CHARLES O. MATCHAM, Director
Sierra-Nevada District, A.I.A.
Los Angeles, Calif.

opposition feared

Dear Editor: I have read this article carefully and I think it is very fine.

We in Texas, where we have a so-called "title" registration act, wish that we could muster sufficient support to strengthen the law. The last effort to do this in the legislature brought down an avalanche of organized opposition from lumber dealers, designers, etc., and threatened a loss of what small progress has been made in registration. We are therefore biding our time until conditions are more propitious for another attempt at strengthening the law. EDWARD L. WILSON, Director
Texas District, A.I.A.
Fort Worth, Tex.

all have gripes

Dear Editor: In reference to Bernard Tomson's column in May 1952 P/A, I must be frank in saying that I am not thoroughly in agreement with our friend on this particular subject. In fact, I do not think that its initial premise is correct. While architects in all of your various states may have a lot of gripes in common, the solution to their gripes is not one that can be uniformly applied, in my opinion.

For instance, I think that the whole matter of registration in all of the different professions is tied in directly with the educational and the economic and industrial development of a state. The states that are more highly developed industrially, and with large concentrations of population in urban communities, have a different registration problem than do states that are sparsely settled and highly rural. For that reason, I do not believe that a uniform model law could be made applicable to all of the 48 states. There would be a great many difficulties confronting any effort to have a uniform law throughout the states and Tomson points out some of these in the second portion of his article, where he describes the weakening of a registration law in certain states where changes have been suggested.

We narrowly escaped a similar experience, here in Virginia, some years ago, when we made an effort to strengthen our law. So many additional amendments were tacked on to our original amendment that the value of our entire Registration Act would have been completely emasculated. We were fortunate in being able to kill our own bill before it was voted on.

I do not know who Tomson has in mind calling for a conference of the kind he suggests. Frankly, I am of the opinion that we have enough organizations already in existence to handle this problem, if it is desirable to do so; however, I am afraid that the difficulties incidental to such a program are almost insurmountable.

In my own opinion, the program of the National Council of Architectural Registration Boards is the only practical solution to the problem. While I do not think that their work has in all cases been perfect, I think that they have done a tremendous job in standardizing examinations and in making facilities availble for reciprocity, etc. I wish that their work could be more highly publicized so that the profession in general would know that these facilities were available, and how easy it is really for the practitioner in one state to gain reciprocity in other states. A. O. BUDINA
Richmond, Va.

started something

Dear Editor: With his customary clarity and authority, Tomson has described a professional nettle common to all states and has proposed action to deal with it. His studies and travels have shown him the universality of the problem of the registration act, and the need for a pooling of information and, if possible, of a suggested uniform registration act.

It lends authority and acceptance to a bill introduced in a state legislature for the creation, or revision, of a registration act, if the sponsors are able to say that this act already has been adopted by other states and thus represents much careful study and testing. Furthermore, if other interested groups, such as the Associated General Contractors, have approved and endorsed the bill in other states, this would encourage favorable consideration by their chapters elsewhere.

In California, we are attempting to gather all the facts we can about registration and other control acts throughout the nation, so that each of the nine California chapters of A.I.A. may study them, preparatory to statewide conference and recommendation. We have been handicapped by the lack of pooled information such as Tomson recommends. Nor do we have anything like a recommended uniform act from which to begin.

Anyone can get a bill introduced in the legislature, but getting it passed is an entirely different matter. Opposition must be anticipated long in advance, and if possible either won over or neutralized. The general attitudes of the legislature and the public toward architects are important, and they have not been too good in the past (at least, in California). Architects are in the minority, and have not commanded political influence by weight of numbers, unity, participation in public affairs, or campaign contributions. Their public and governmental relations have been neglected too long.

So we have other factors to consider when we approach the problem of the registration act. First, the decision and unity as to what we can ask, as being sound, in the public interest, and possible of attainment. Then obtaining the support of others, particularly

(Continued on page 16)

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VIEWS

(Continued from page 14)

other groups in the construction industry who have influence with the legislature. Then the handling of the bill and winning support and votes in the legislature.

This suggests to me that perhaps other information also should be pooled by the various states, such as what opposition has arisen, its motives and arguments; what steps have been taken to handle it; etc.

We hope Tomson has started something, and want to co-operate in any way we can.

FREDERIC A. CHASE
Executive Secretary
California Council of Architects

tremendous step forward

Dear Editor: The co-ordination of the registration laws in the various states would be a tremendous step forward for the profession. Tomson's article does an excellent job of bringing us up to date on the situation as it exists today.

It is to be hoped that with Tomson's gentle prodding the A.I.A. chapters throughout the country will pick it up and get some action at the forthcoming Convention.

JOHN W. GREINER
Lancaster, Pa.

a growing problem

Dear Editor: The article by Bernard Tomson regarding registration laws is a fine presentation of a growing problem that should have been rectified long ago. How much better qualified all architects and laymen would be if there were available a composite of all registration laws—when they start out to initiate or revise existing laws. I feel sure that every registration board could supply a number of "do's or don'ts," regarding their law that would be of benefit to others. It would supply the architect with a world of factual information when appearing before the law makers that would increase his stature and standing.

M. H. STARKWEATHER, Director
Western Mountain District, A.I.A.
Tucson, Ariz.

criterion needed

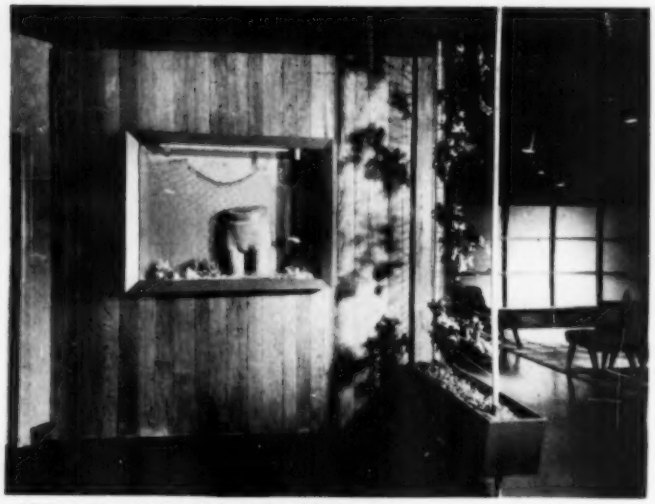
Dear Editor: I sincerely believe that the profession of architecture would be greatly benefited by the formulation of a model law that the states could use as a criterion for measurement of their present statutes and contemplated changes. It is my belief that such a model law should be worked out in conjunction with the National Council of Architectural Registration Boards. We, in Virginia, will be most happy to co-operate with this group in working out such a model law and believe that it will be of immeasurable benefit to the public, the profession, and certainly to those of us who are charged with the administration of the various arts.

E. H. WILLIAMS, JR., Director
Professional and Occupational Registration
Commonwealth of Virginia

the weakest link

Dear Editor: I enjoyed reading Tomson's column on the architectural registration laws and think it an excellent statement. It seems to me that the registration procedure is probably the weakest link in the profession. The standards of the different states vary to an alarming degree. The saving grace seems to be the

(Continued on page 20)



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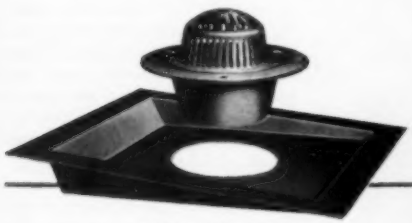

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VIEWS

(Continued from page 16)

simple fact that the architects who serve on our state boards are top-quality men.

B. KENNETH JOHNSTONE, Dean
College of Fine Arts
Carnegie Institute of Technology

meeting would help

Dear Editor: I heartily agree with this article. I also agree that there is a need for co-ordinated activity on registration laws. I agree that a meeting to formulate these model laws would be of considerable help.

G. THOMAS HARMON, Director
South Atlantic District, A.I.A.
Columbia, S. C.

favors model law

Dear Editor: Certainly, no one can quarrel with the proposition that uniformity of regulation requirements is highly desirable. It was exactly that desire which motivated the resolution of the Chicago Chapter at the Washington Convention of the A.I.A. and led to the comprehensive survey of architectural education and registration now in progress.

I think the results of that survey should be studied before any moves are initiated, but I do believe the drafting and acceptance of a model registration law might well become a logical instrument through which uniformity can be ultimately attained.

NORMAN J. SCHLOSSMAN
Second Vice President, A.I.A.
Chicago, Ill.

regrettably true

Dear Editor: Tomson's column from May 1952 P/A has been read with interest.

Tomson's statement that the architects (and even the registration boards) of the various states fail to collaborate effectively is (regrettably) true in far too many cases. When I was president of the N.C.A.R.B., I made a strenuous effort to make that organization a more potent means of co-operation. If you want the history of the N.C.A.R.B., I will be glad to send you what information I have.

If you can stimulate interest in registration on the part of the Institute, the A.I.A. Chapters, and the faculties of architectural schools, you will have rendered a service to the profession. The A.I.A. Committee on Education has made objective studies of registration problems from time to time. Some chapters and state associations also, have done constructive work. A few members of architectural school faculties, too, have served on state registration boards and as officers of the N.C.A.R.B. Ken Johnstone was Chairman of the A.I.A. Committee on Education when the last comprehensive study of registration was made by that group. You are probably familiar with the current work of the A.I.A. Commission to Survey Architectural Education and Registration. Some significant recommendations are being formulated by that group, of which Ed Burdell of Cooper Union is Chairman. Roger Kirchhoff is now president of the N.C.A.R.B.

In general, architects and others tend to take only a mild interest in registration unless it "gets in their hair." Applicants think the examinations are terrible until they finally pass them—and then they think they are fine! Often, applicants who are required to re-take certain

(Continued on page 170)

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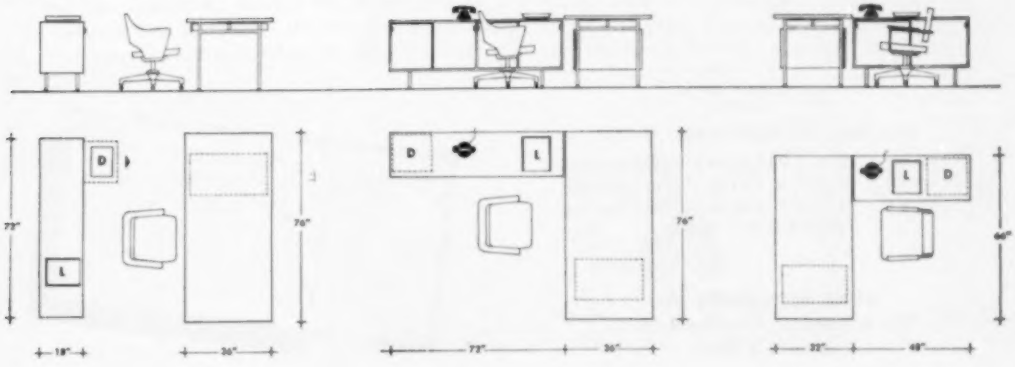

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Multiple accordion aluminum is commercially available as Infra Insulation, Types 6, 4, and 4 Jr. For a complete discussion of the subject, ask us to send at our expense, Schwartz's "Simplified Physics of Vapor and Thermal Insulation," and the Government booklet, "Insulation and Weather-Proofing" (Div. Farm Bldgs. & Rural Housing).

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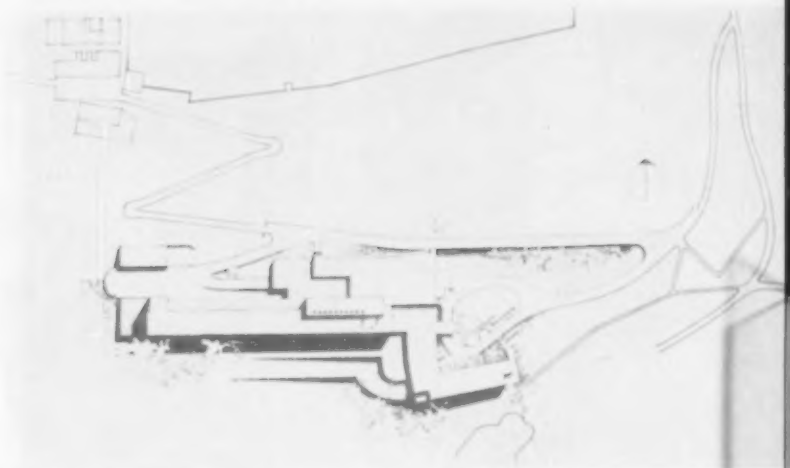
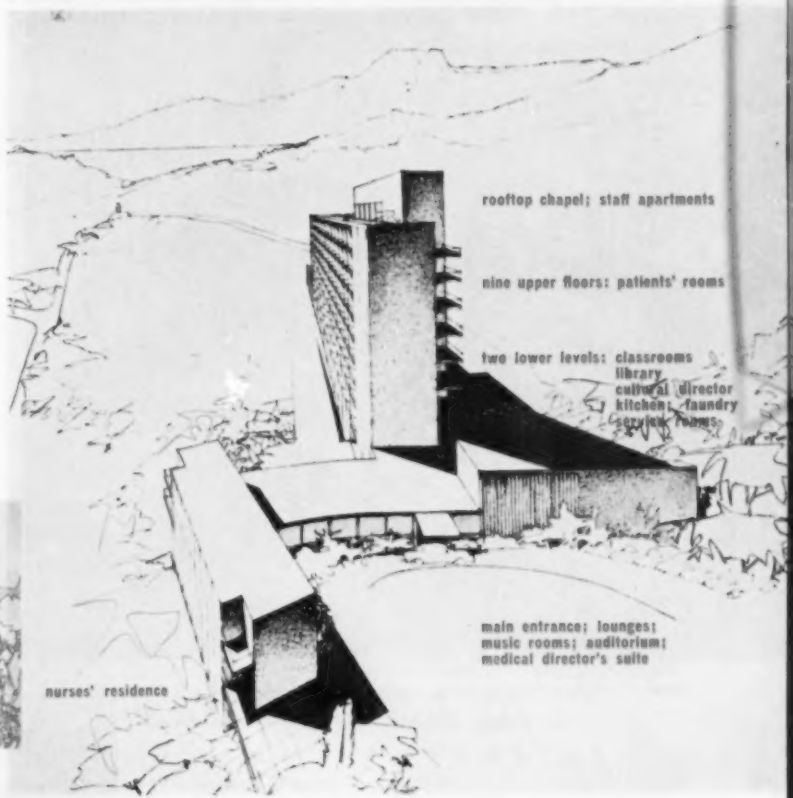
combined sanatorium and university

Now under construction at Agra, Italy, high on a slope that commands a superb view down across Lake Maggiore and the surrounding ranges of mountains, this is a remarkable combination of a TB sanatorium and university. The architect for this complex is Richard J. Neutra of Los Angeles; his chief collaborators are Dr. Ludovico Quaroni, Frederick Reichl, Sidney H. Brisker, Edgardo Contini, and Dion Neutra.

This latter-day "magic mountain" is being built for the *Associazione Sanatorio Universitario Italiano*, from the last three words of which the project derives its name of SUI. This organization, headed by leading Italian physicians, has cordial relations with the administrations of all Italian universities and is supported by the Ministry of Health of the Republic. Neutra requests that special credit be given to Dr. Omodei Zorini, SUI's president, and Dr. Pietro Buscaglione, the active secretary, for "their untiring efforts with the authorities in Rome."

Incidence of TB in Italy was considerably aggravated during the war years, and the customary disposition of the afflicted was to relegate them to comparative inactivity at their homes—a lonely, frustrating existence that doctors concluded was a psychosomatic error. The idea behind the combined sanatorium-

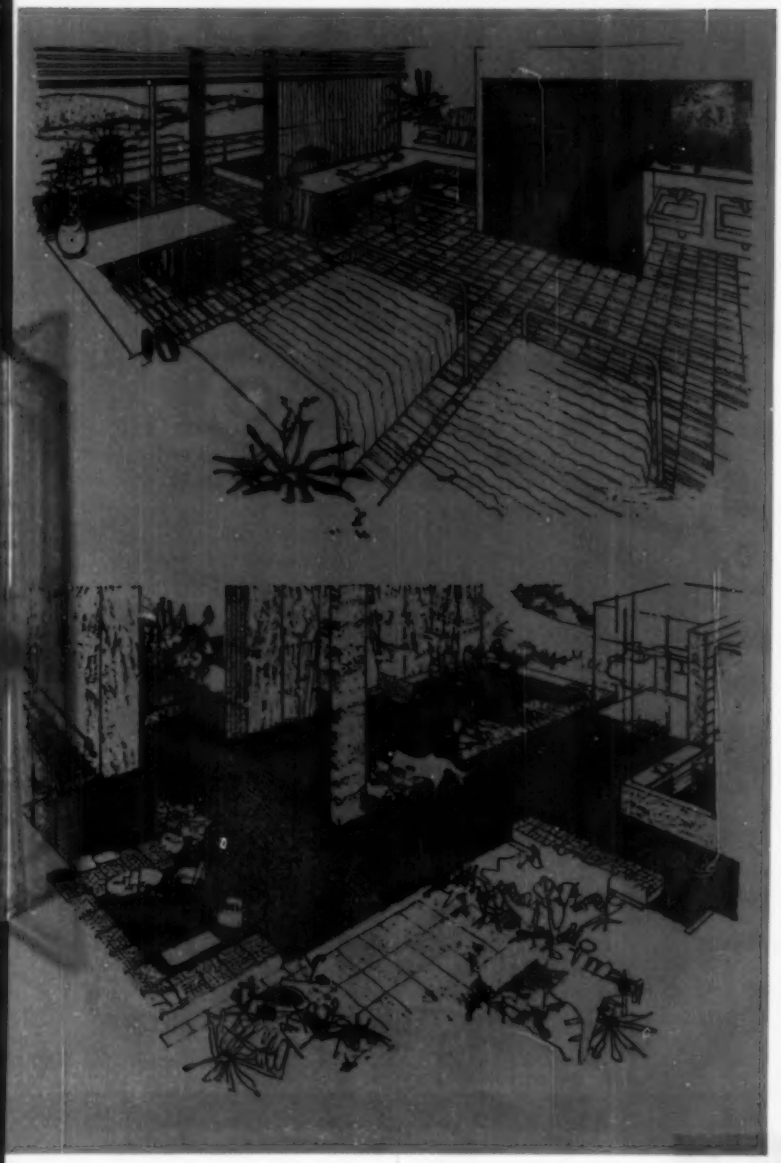




The rooftop chapel opens to the southern terrace.

(Continued from page 23)

Typical two-patient room, facing south; sun balcony beyond.



university is to set up a health-care facility in ideal surroundings, where the TB patients can stay and receive expert treatment but where they also will have an educational goal, the stimulation of friends, and the encouragement of preparing for future careers. Thus, it is hoped, the stumbling block of the affliction may be turned into a stepping stone, with the curative process speeded. The educational portion of the group will be a college affiliated with all Italian universities, and it will have an accredited teaching and visiting-lecturers' staff.

In the design of the project, the effort was to avoid an institutional aura as far as possible, with emphasis, both in plan and visually, on the cultural aspects—the auditorium, lounges, music rooms, library, etc.

Each of the nine upper stories of the main block has facilities for 33 patients in either single or double rooms, with adjoining south-facing balconies large enough to accommodate beds, a dining room, and a living room. On the lower floors are the college classrooms, library, cultural director's suite, and main kitchen, laundry, locker rooms, and service rooms. The chapel is on the roof of this main block, with southern walls that may be fully opened to a roof terrace; above this are two small apartments for staff members.

At the front of the group is a two-level curved element with the main entrance, lounges, smoking room, billiard room, music rooms and auditorium; as well as laboratories, medical director's offices, examination rooms, etc. At the southeast corner is a multi-story residence for nurses.

In dealing with his client at long-distance, Neutra went into the analysis of

(Continued on page 143)

Entrance lounge, with music-assembly room through folding door at left.

Lake Maggiore, as seen from the sanatorium-university site.

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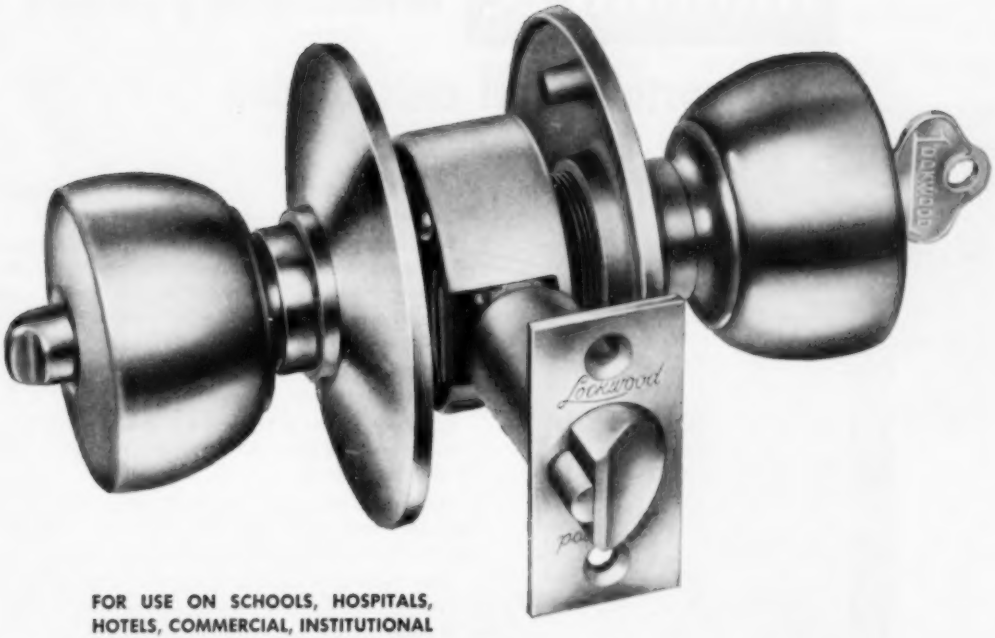

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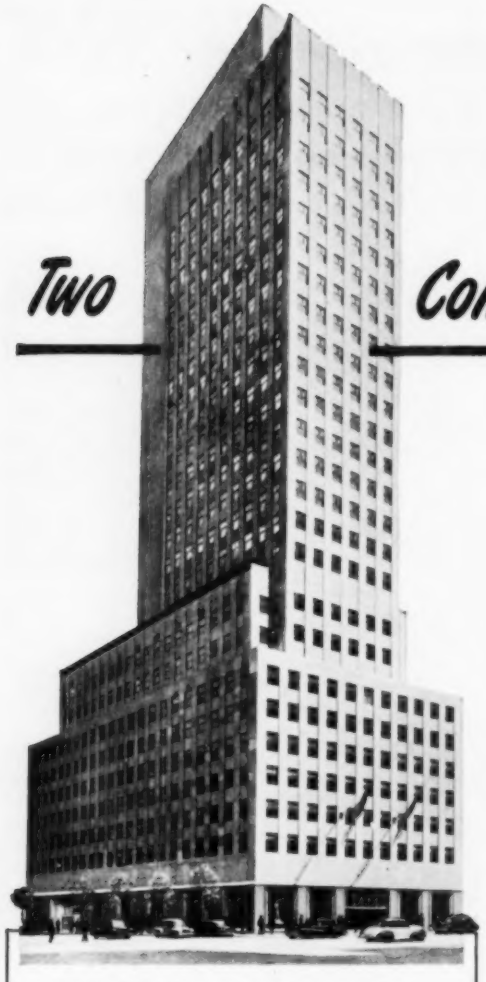

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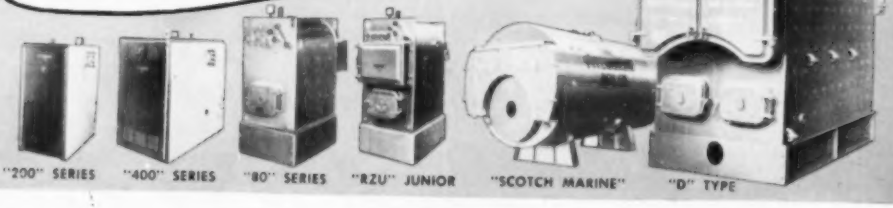

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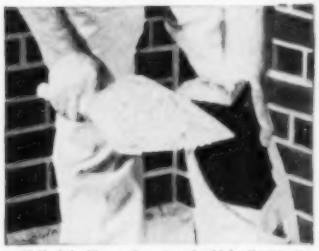
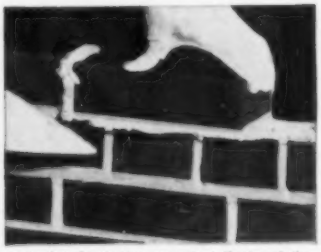
GET BETTER BRICKWORK WITH BRIXMENT!

Good workmanship requires that all head joints in both face brick and back-up work be *completely* filled with mortar, by any of the three methods pictured below.



Method 1. Plenty of mortar should be thrown on the end of the brick to be placed.

The brick should then be pushed into place,



So that the mortar oozes out at the top of the head joint.

Method 2. A dab of mortar should be spotted on the corner of the brick already in place.

Then plenty of mortar should be thrown on the end of the brick already in place.

So there will be more than enough mortar to fill the joint completely when the next brick is pushed into place.

Method 3. A full trowel of mortar should be thrown on the wall.

Then the brick should be shoved into this deep bed of mortar.

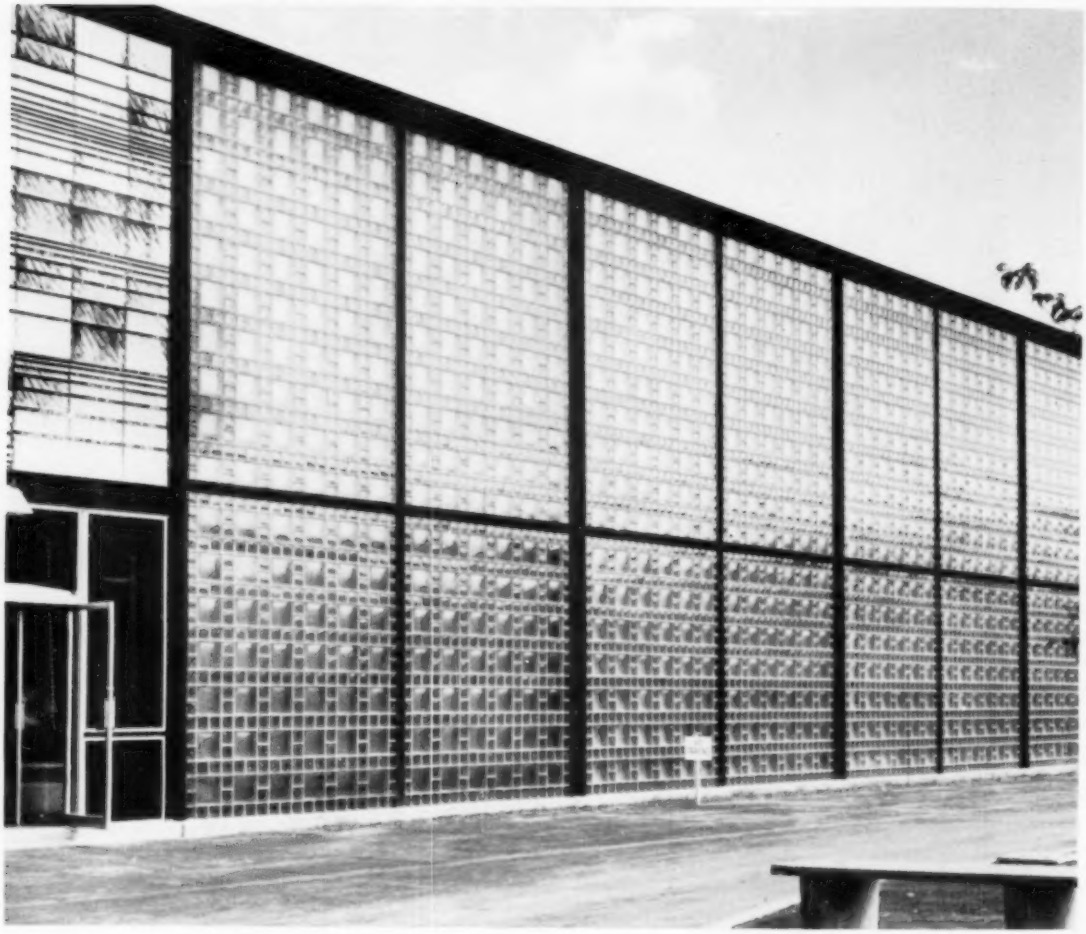
So that the mortar oozes out at the top of the joint.

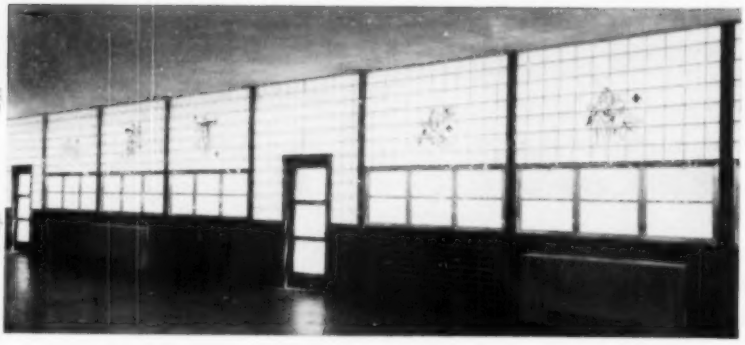
BRIXMENT permits the bricklayer to do the kind of work pictured above. It does not stiffen up too fast, when it hits the brick. It remains rich and plastic long enough to allow the bricklayer to place the brick, easily and accurately.

In addition to its greater plasticity, Brixment mortar has higher water-retaining capacity and bonding quality, and greater resistance to freezing and thawing. Because of this *combination* of advantages, Brixment is the leading masonry cement on the market.

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE 2, KENTUCKY

Pittsburgh Corning Glass Blocks

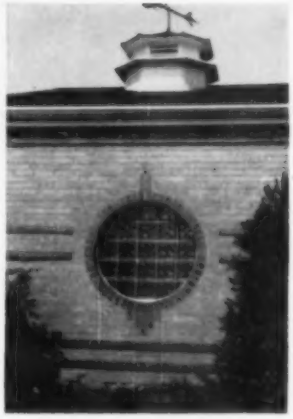




DECORATED inserts of PC Vue Glass Blocks are combined with light-directing functional patterns at the new church and school of St. Christopher's Parish, Marysville, Michigan. Multicolored paintings, baked on the glass blocks, create the effect of stained glass. Architect: Charles M. Valentine, Smiths Creek, Michigan.

offer unlimited application possibilities

AT Corning Glass Center, Corning, New York, is this excellent example of the use of 8" and 12" square PC Glass Blocks in large-scale panels. Here is design appeal of the highest order. Moreover, PC Glass Blocks provide better diffusion of daylight inside; better insulation (more than twice that of conventional windows); they lower maintenance costs, improve working conditions. Architects: Harrison, Abramovitz & Abbe, New York, N. Y.; General Contractor: The George A. Fuller Construction Co., New York, N. Y.



HOW effectively PC Glass Blocks combine with other building materials is clearly demonstrated by this application. In this unusual treatment, the PC Glass Blocks help to emphasize the masonry detail. Architect: G. Hansmann, St. Louis, Missouri.

Pittsburgh Corning Glass Blocks are immediately available

. . . and this includes PC *Functional* Glass Blocks, especially designed for precision work. These glass blocks—in 8" and 12" square sizes—contain such features as light-directing prisms on the interior faces of certain patterns, light-spreading corrugations on outside faces, a fibrous glass insert to diffuse still further the light transmitted by the block itself, and the PC Soft-Lite* Edge Treatment, which creates a better, more comfortable "eye-ease" panel appearance. The new "Clean-Easy Face Finish" prevents mortar and installation scum from adhering to the panels during construction, thereby reducing costs by cutting in half the time required for on-the-job cleaning.

*T.M. Reg. applied for.

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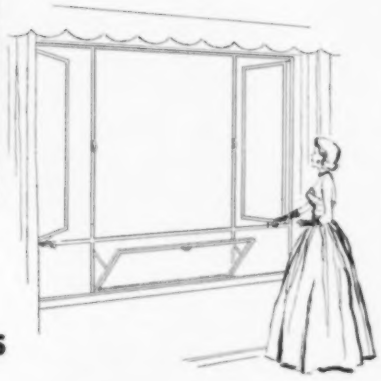
Architect: Mayer & Whittlesey and Skidmore, Owings and Merrill, N. Y.

Contractor: Cauldwell-Wingate Co., N. Y.



Manhattan Apartments... Proudly Furnished with the Finest in Windows

Here is the clean, flowing beauty of line that makes Fenestra* Windows a proud part of fine furnishings.

Here are windows that act at the gentle command of a woman's hand . . . swinging out at the sides to capture a passing breeze . . . swinging in at the sill to furnish controlled ventilation, even while the rain falls. No wonder tenants like them.

Why are Fenestra Windows so exceptional?

The geared roto-adjusters, by which they operate so faultlessly, are part of the reason. And partly, it is the advanced design of the rolled steel casement sections. But mostly, it is the composite skill of the best designers and craftsmen, plus the priceless experience of America's oldest and largest steel window manufacturer.

Ask for full information from your Fenestra Representative, see Sweet's section 17 b/DET, or write to Detroit Steel Products Company, Dept. PA-6, 2253 East Grand Boulevard, Detroit 11, Michigan. *®

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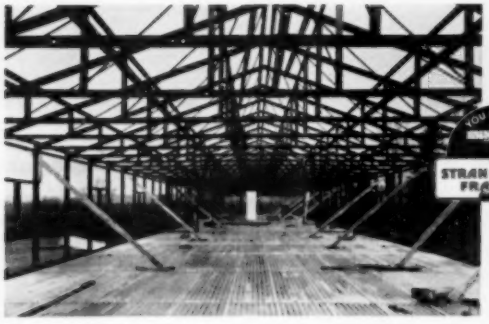

Non-combustible Stran-Steel framing members were used for exterior walls, interior partitions, roof trusses, and floor joists in New York State Conservation Department building at Sherburne, N. Y.

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the modern elevator

NORTHWESTERN MUTUAL FIRE ASS'N

Los Angeles, Calif
Architect: Richard J. Neutra
Contractors: C. W. Driver, Inc.
Rotary Oildraulic Elevator (passenger) installed by Elevator Maintenance Co., Ltd.

Photos by Julius Shulman

Oildraulic Passenger Elevators

The velvet-smooth fluid operation of the Oildraulic system is ideal for passenger elevator service. You can depend on gentle starts, cushioned stops and accurate landings. Any desired types of cabs, doors and controls can be supplied.

No penthouse or heavy supporting sidewalls needed

The Rotary Oildraulic Elevator is moved and controlled by oil under pressure, the most powerful and practical of all methods of lifting heavy loads. The elevator car and its load are supported by the hydraulic system—not by the building structure. This makes possible a substantial lightening of the shaftway structure, with savings in construction costs. There's no need for heavy, load-bearing sidewalls, supporting columns and footings ordinarily required to carry the overhead machinery, the car and the load.

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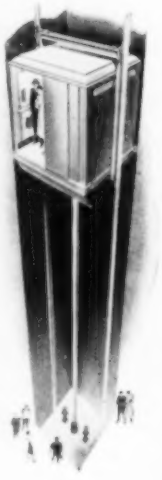

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Engineers and Contractors:
Sumner S. Sollitt Construction Co.
Rotary Oildraulic Elevator (freight)
installed by Gallaher & Speck, Inc.

Photos by Torkel Korling

Oildraulic Freight Elevators

Oildraulic operation makes it practical and economical to design Rotary Elevators to carry loads up to 100,000 lbs. Oildraulic Freight Elevator cars have extra-rugged construction essential for rough, tough freight service and power truck loading.

Rota-Flow power system gives smooth, quiet, low-cost service

A revolutionary oil hydraulic power system moves Rotary Oildraulic Elevators on a smooth, continuous column of oil. Combined with the efficient Rota-Flow power unit to give perfect operation is the Oildraulic Controller. This engineering marvel handles the functions of seven separate control valves, simplifies adjustments and maintenance.

Smooth starts and stops are a feature of these modern elevators. Oildraulic automatic floor leveling positions the car to each landing with exactness—¼" accuracy is guaranteed!

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auditorium roof crafted by Overly

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For permanent freedom from maintenance, repairs, and leakage, the General State Authority of Pennsylvania specified this Overly-Goodwin Batten Type aluminum roof. BUILDING: Shippensburg State Teachers College Auditorium at Shippensburg, Pennsylvania. ARCHITECTS: William Lynch Murray & Associates, Harrisburg, Pennsylvania. GENERAL CONTRACTOR: Earl L. Cump of Chambersburg, Pennsylvania. • Overly fabricated and erected the roof, ventilator, gutters, and conductors—all of aluminum with Alrok finish. For further details on this patented construction, send for Overly Catalog 8-B.

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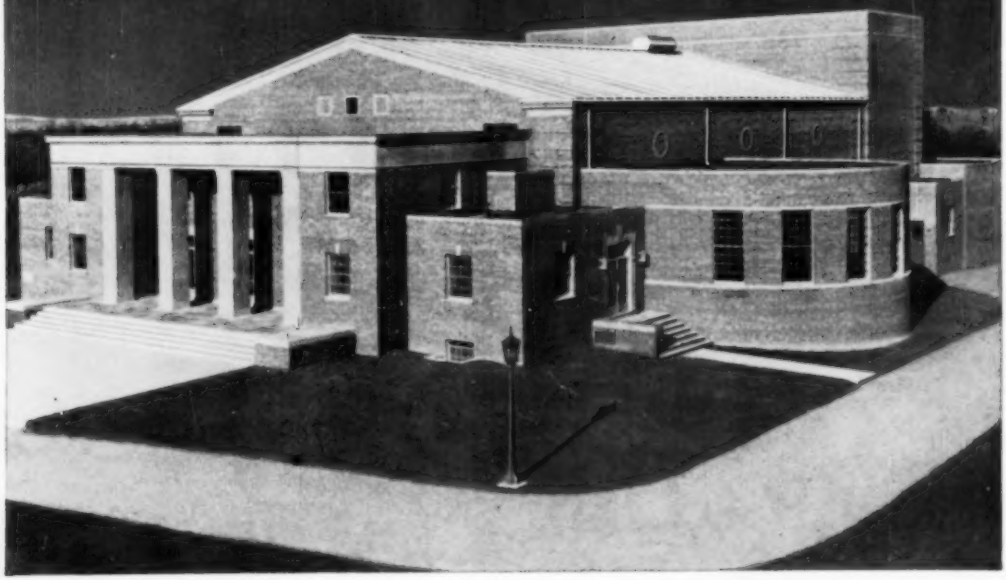

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Engineers can now specify **and get** any required level of intensity. Or **different** intensities for different sections of an installation may be recommended to permit optimum usage of store or office areas. Alternating light, rows of lighting, or banks of lighting are possible because of flexibility of switching and a specially designed wiring system.

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For those who own buildings and businesses of many kinds, **Smithcraft Area Illumination** is a **profitable** and practical investment. Versatile and adaptable, here is highest quality illumination combined with appearance and effect that **sells** and **produces.** Its ease of maintenance and adaptability to future plans and developments are factors that interest any businessman. Yet, its initial cost is comparable to that of a suspended ceiling and troffer system.

America's finest fluorescent fixtures **Smithcraft**
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Andersen Gliding Windows in Short Hills, N. J., home, Dalzell & Dalzell, architects

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says, R. C. (Andy) Anderson,

Bryant-Anderson Company, Houston, Texas

With usable space at a premium, it is little wonder that the Bryant *Hideaway* Gas Furnace is proving so popular. Architects and builders say it not only saves valuable space, but the furnace, itself, is a real selling feature. Tucked away in the attic—or suspended from the ceiling or under the floor—this dependable forced-air furnace provides a world of comfort for householders while releasing *extra space* for storage, utility purposes or plain *living*. The *Hideaway* is a true Bryant product—long on dependability and gas economy, and with positive automatic control. Naturally, the casing temperatures are low. You'll also like the way it goes in—structural steel mounting channels come with it and can be used to suspend the unit when it is so installed.

Yes, you'll like this Bryant *Hideaway* Forced-Air Furnace that gives you both added living space and better heating. Why not ask your Bryant Distributor for full details? Or write Bryant Heater Division, Dept. 193, Affiliated Gas Equipment, Inc., 17825 St. Clair Ave., Cleveland 10, Ohio.

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Can be tucked away in the attic, or suspended from ceiling or under the floor. Fully automatic, forced-air unit with *Hevigage* heat exchanger. Available for all gases. AGA inputs: 65, 85, 100 and 125 thousand Btu per hour.

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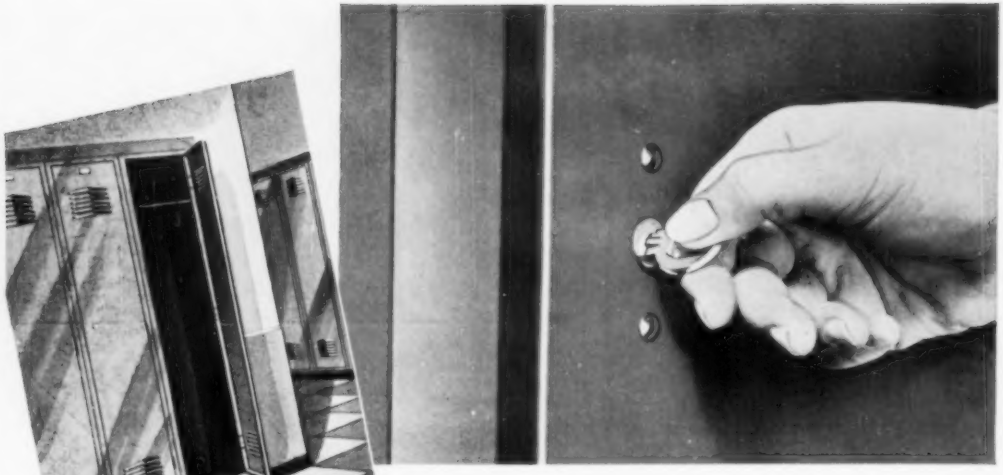

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- **Opens, closes, locks, unlocks with just the key**
- **No protruding handle**

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New Heavy-Duty Industrial Floor

CUTS COST OF FLOOR UPKEEP
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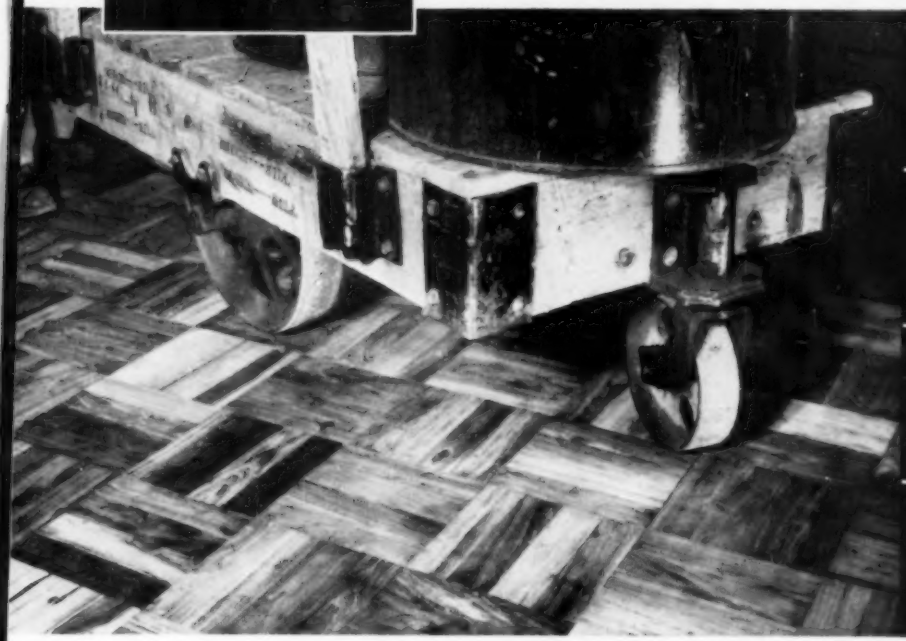

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(Hickory and Pecan)

EXTRA THICK (33/32 INCH)
(Tongued and grooved)

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(For durability and protection)

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Dura-Wood Blocks are made of tough, long-wearing Hickory and Pecan . . . close grained, heavy hardwoods that resist wear and abrasion. A floor of this type will last indefinitely. It will not powder, dust, crack or wear away like many hard-surfaced floors.

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Workers find this hardwood floor far more comfortable underfoot—much less fatiguing than unyielding floors of concrete or other hard materials. No more cold feet . . . less lost time from colds.

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Plant engineers report far less damage to tools and machined parts when accidentally dropped on wood floors than on hard surfaced floors. There's less wear and tear on power trucks and other rolling equipment, too.

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Dura-Wood Blocks are laid in mastic over concrete slab. Where service is the principal consideration, it is unnecessary to sand or finish the floor as the *Toxik* treatment preserves and protects the surface.

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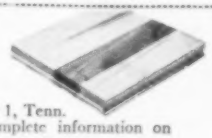

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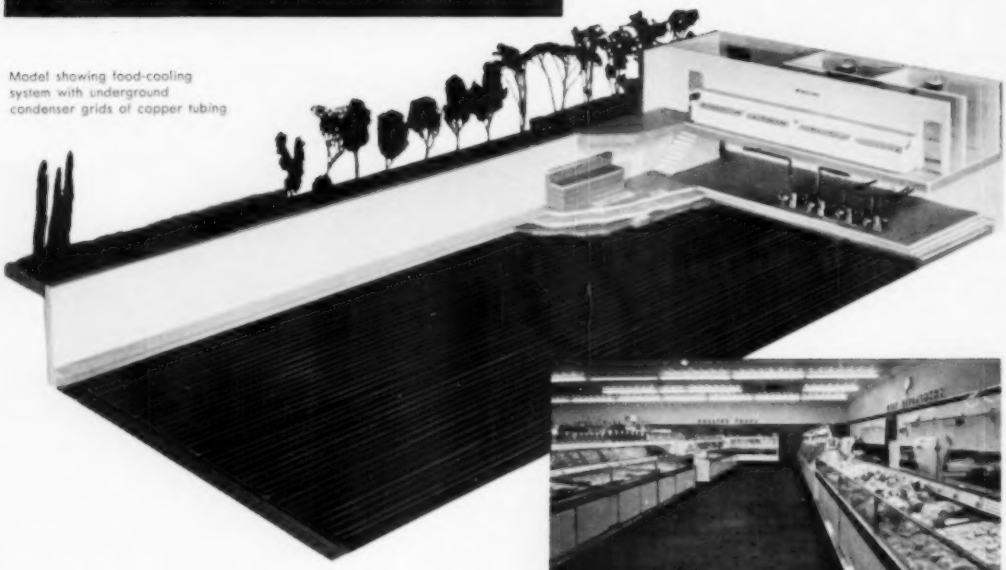

Model showing food-cooling system with underground condenser grids of copper tubing

Heat from these display cases is disposed of through tubing buried below basement floor

Installing condenser grid in wet clay prior to pouring basement floor.

copper tubes

form underground refrigeration condenser

When discussing the refrigeration system of a planned new supermarket, the owner stipulated:

1—Low operating costs
2—Minimum use of city water
3—Dry basement storage facilities

The Charlton brothers of the Temperature Equipment Company, Hartford, met all 3 requirements very successfully and to the owner's complete satisfaction.

The system was devised so that earth instead of water is used as the cooling medium. Copper tube grids, installed in the ground before the concrete basement floor was poured, serve as the condenser. The surrounding damp earth efficiently absorbs the heat and enough warmth reaches the basement floor to prevent the accumulation of moisture on its surface.

In the first year of operation the owner estimates a saving of $750 in water charges alone, plus the added savings afforded by the dry basement in eliminating moisture damage to stored goods. It's another example of the versatility of ANACONDA Copper Tubes for all types of plumbing, heating and refrigeration piping.

A complete description of this installation will be gladly forwarded on request. The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

modern plumbing calls for ANACONDA® copper tubes

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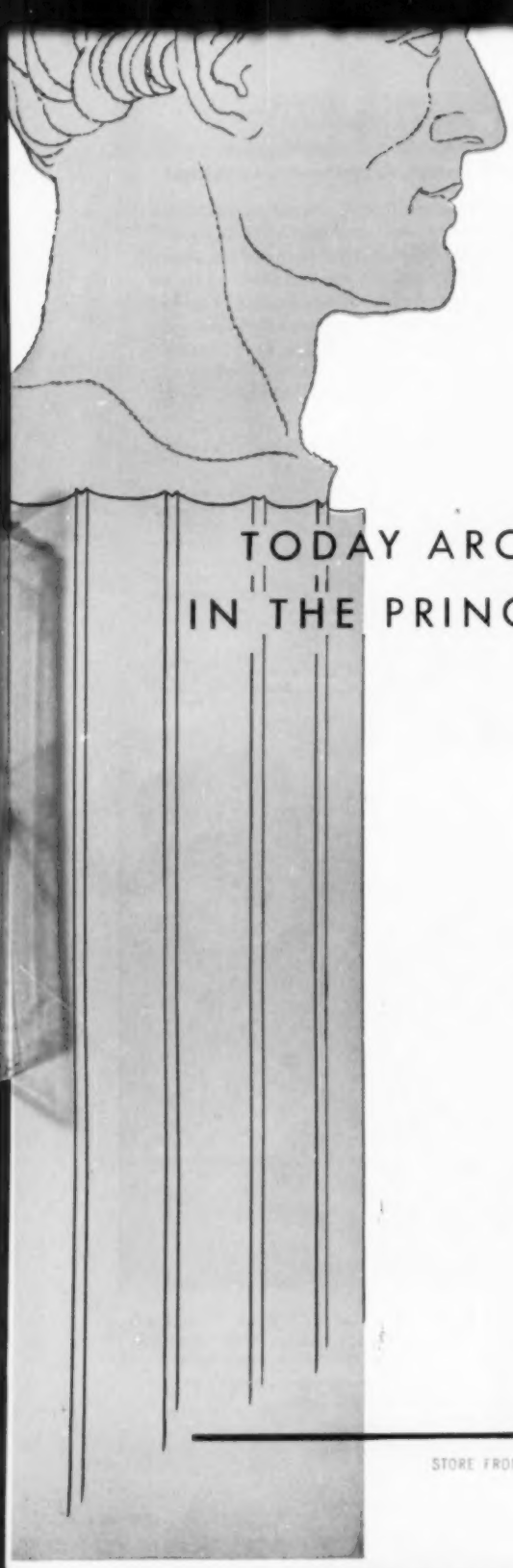

Two thousand years ago the great Roman architect, Vitruvius, wrote: Architecture should meet three requirements: unity, strength, beauty.

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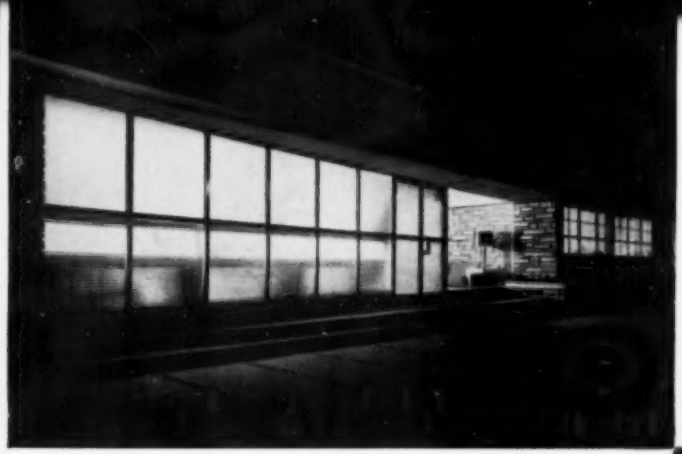

Kawneer Glazing Sash and Entrances:
Whitaker Guernsey Studio, Chicago, Ill.
Harper Richards, Architect.

. . . . **THE FUNDAMENTAL TRUTHS OF ARCHITECTURE** are as eternal as the profession itself. Modern architects, whether designing a commercial building, store, or civic building —still honor the principles of unity, strength, and beauty. And they find that Kawneer architectural metal products have been painstakingly engineered and styled to help them achieve these goals.

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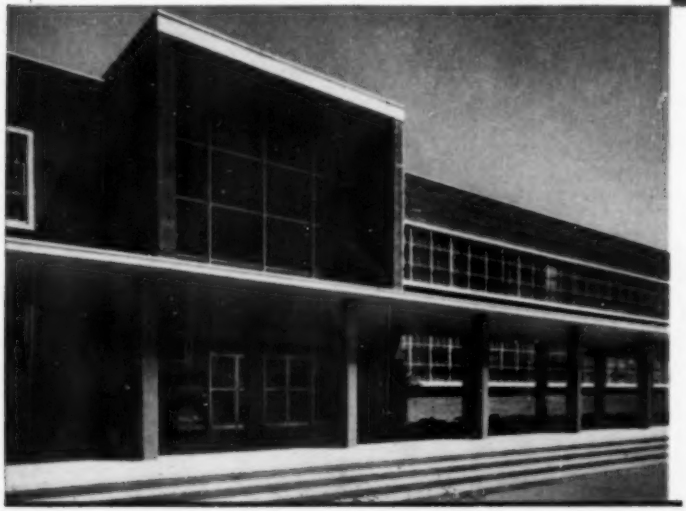
used in two colors as a facade covering,
Kawneer entrances, glazing sash, trim:
Sears, Roebuck Store, Port Huron, Mich.
Wyeth & Harmon Architects.



Kawneer mullion construction, entrances, trim:
Hall of Justice, Richmond Civic Center, Richmond, Cal.
Elmer J. Freethy, Architect,
Designers of Center: Milton H. Pflueger
and Timothy L. Pflueger, Architects.

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Store front of Ludwig Baumann's Hartford, Conn., branch using Reynolds *Lifetime* Aluminum embossed corrugated sheet and extruded sections. Architect: Morris Lapidus, New York. Contractor: Julius Greenberg Co., Hartford.

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Consider the adaptation of Reynolds Aluminum Residential Windows (casement, double-hung and awning, with fixed and picture window combinations) ...and the rustproof durability of Reynolds *Lifetime* Aluminum Gutters. Check the convenience of Reynolds Aluminum Reflective Insulation wherever you require efficiency without bulk plus perfect vapor barrier. You get the advantages of Aluminum at low initial cost and with labor-saving application through well developed methods. Write for literature. **Reynolds Metals Company**, Building Products Division, 2014 South Ninth Street, Louisville 1, Kentucky.

This Kansas City apartment building uses 306 Reynolds Aluminum casement windows. Architect: J. F. Lauck. Owner-Builder: George C. Norton. Write for catalog showing also Reynolds new awning window.

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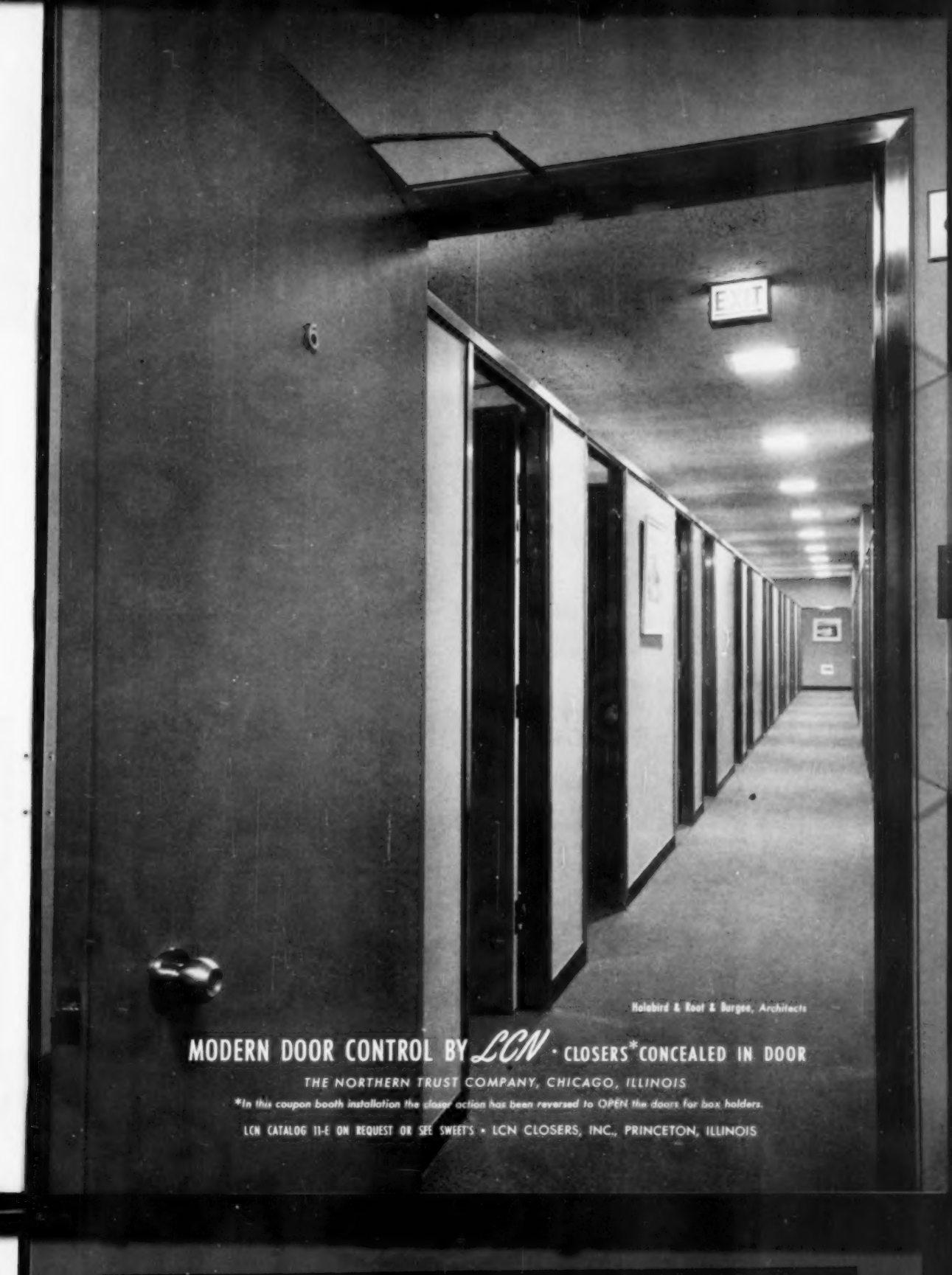

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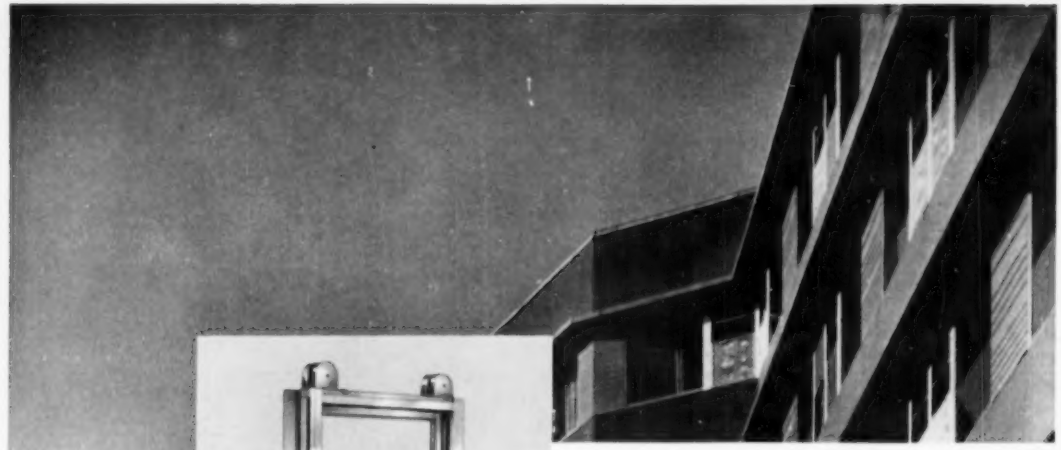

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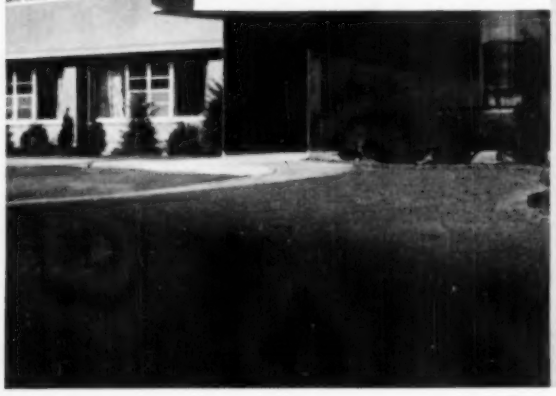

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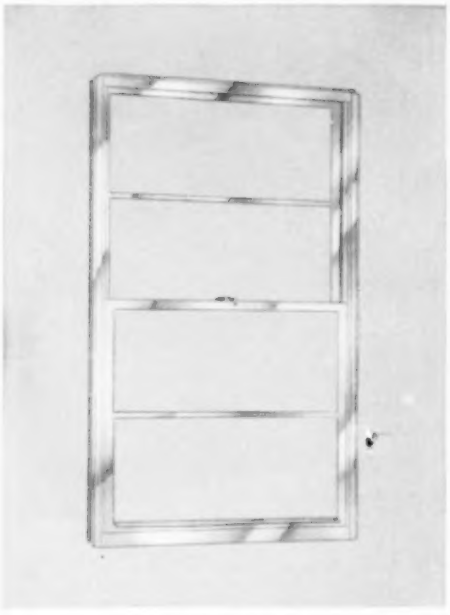

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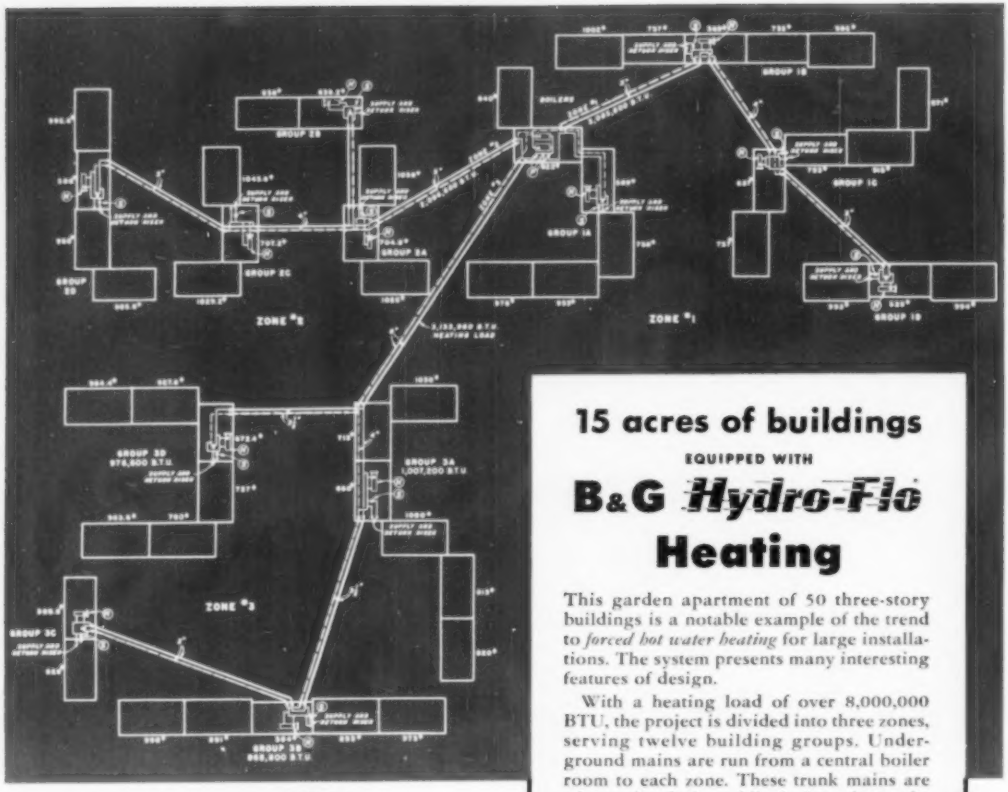

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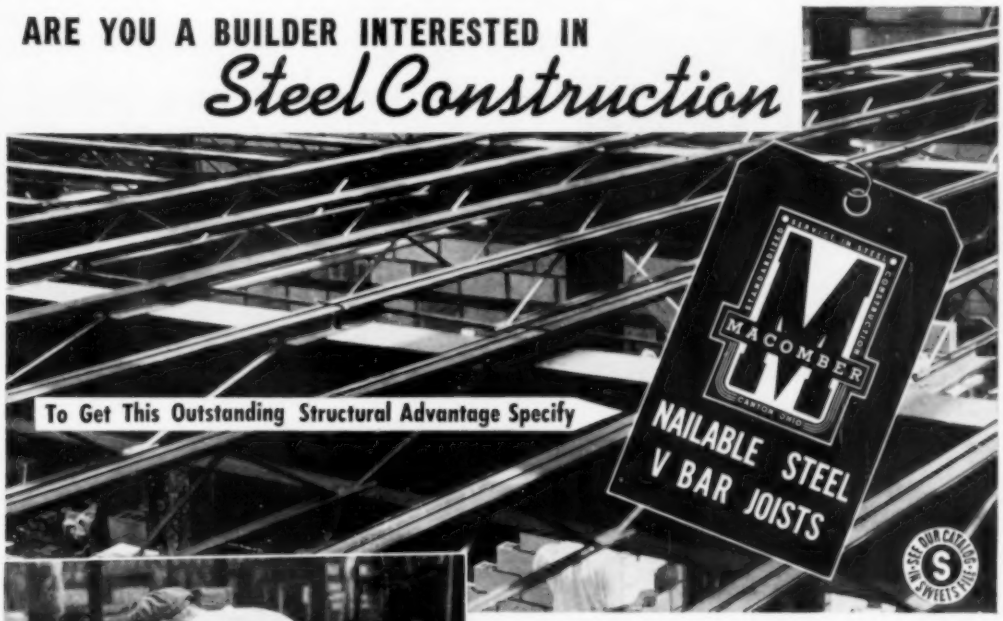

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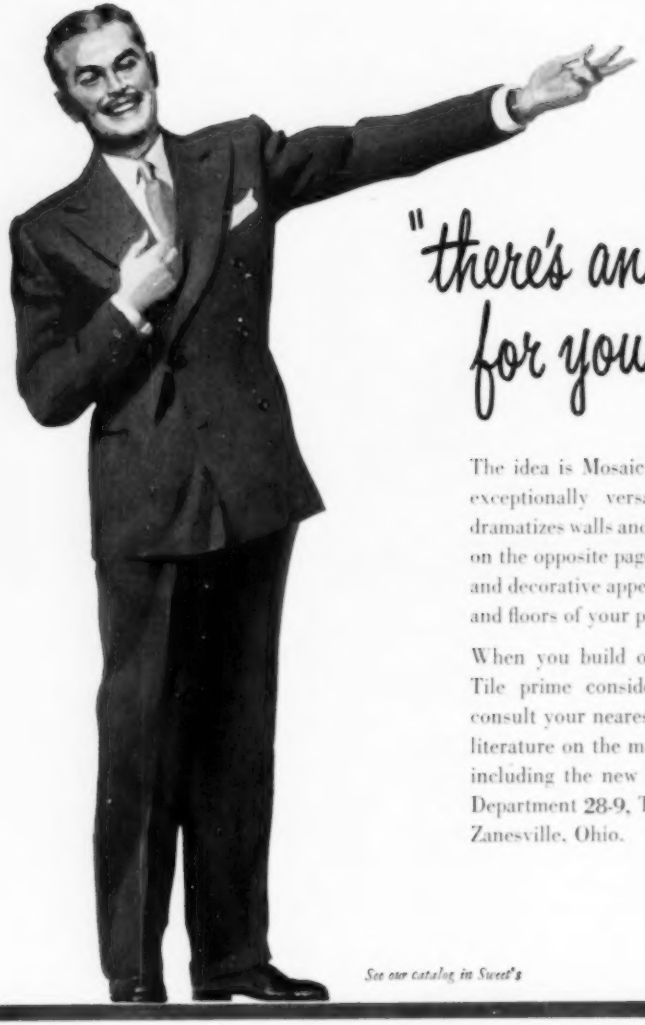

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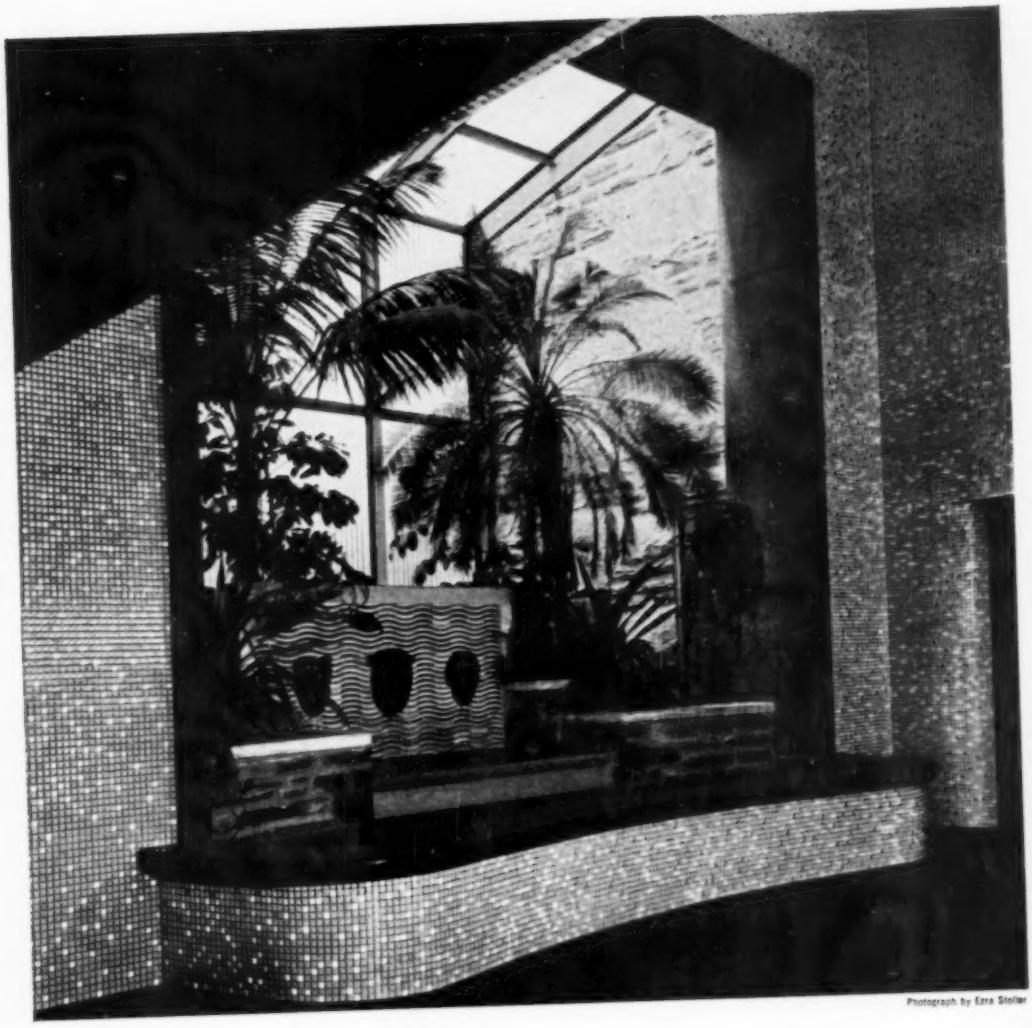

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the new building type

a study

written and arranged

by

Victor Gruen, Architect and Lawrence P. Smith, Real Estate Consultant

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Karl O. Van Leuven, Jr.
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Ben Southland
Fred G. Stickel
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Mr. Smith's Associates:

Frank A. Orrico
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This issue of PROGRESSIVE ARCHITECTURE, devoted to a study of the planning of shopping centers, was prepared very much in the same manner in which shopping centers are created—by team work. An architect and a real-estate economist are responsible for the basic concept. Much of the writing and the co-ordination of the material was also done by them. However, their associates have contributed materially, by writing chapters, by preparing drawings and sketches, and by taking part in round-table discussions held on many occasions over many months.

The cumulative experience of the contributors is tremendous. Since he came to New York, in 1939, Victor Gruen, architect with offices in Los Angeles, Detroit, and New York, has been active in store design. In this field he has been a pioneer; many aspects of modern store design have been introduced by him in projects which range all the way from intimate shops to department stores. Gruen early turned to shopping center design as a potentially new field of architectural expression, and in recent years he has designed many neighborhood centers, suburban centers, and regional centers. Larry Smith, real-estate economist and consultant, has a background of real-estate experience going back to 1917, as well as private business experience; working in recent years in a professional capacity as consultant for shopping center projects, for investment companies, insurance companies, department store organizations, and private investors. He is regarded as one of the outstanding authorities in the shopping center field.

what is a shopping center?

A shopping center must be more than a mere collection of stores and shops.

A shopping center must be even more than its name implies—a center for shopping.

The regional shopping center must, besides performing its commercial function, fill the vacuum created by the absence of social, cultural, and civic crystallization points in our vast suburban areas.

The centers of our big cities are shrinking, not only as far as the size of their populations is concerned, but much more in their importance to the social life of the metropolitan inhabitants.

During working hours, the downtown centers still represent great concentrations of trade, banking, and office work activities. For 40 hours a week, most of them teem with life.

But for the 128 hours a week over which the metropolite is master of his fate—the 128 hours a week which are devoted to his or her private life, those 128 hours and the many hundreds of hours a year during which holidays unchain him from his duties—the core areas of our cities are deserted and might as well not exist.

This is true for the working part of the population. For the non-working part, downtown is even less important. Our children, our youth, the aged, and the housewives are groups which together represent a majority of the population. For them, a trip "downtown" occurs sometimes only once or twice a year and is like a trip into another city or country.

True, there are exceptions. Manhattan, Chicago, San Francisco, and a few other cities still have attractions of sufficient magnetic power to draw the suburbanite into the downtown area from time to time. But even there, magnetism decreases as the centrifugal forces grow.

The reasons for this phenomenon are many-fold. The mass migration from the country to the city which took place in the past has now been reversed by a new, still more powerful wave of migration from the city to the suburbs.

The automobile has made this migration possible. And now the metropolite finds himself in the position of the Sorcerer's Apprentice—the spirits he conjured up he cannot exorcise. The millions of gasoline-driven "spirits" get into each others' way and choke the highways, roads, and parking areas.

The metropolite is willing to find his way into town in order to make a living, but he protests vehemently against the idea of repeating this nerve-racking routine for purposes of pleasure, relaxation, cultural enrichment, or education.

This condition will exist, and become even worse, as long as the pressures to which downtown areas are exposed are not lightened, and as long as the ring of blighted and slum areas which surrounds

Nuremberg market place, from a 1493 engraving by Lorenz Strauch, shows the shops around the square under arcades; the temporary stalls in the center of the square. Commercial activity is integrated with the town center—churches, municipal buildings, and stores are together.

The Greek Agora was the market place and, at the same time, center of city life. Here, in the Agora at Assos, one sees the stoa (market hall) set against the mountain, with a promenade before it. Opposite is

Credits for all illustrations on page 160.

so many of our downtown districts is not broken. Movements are underway to do something about both. The slum clearance and rehabilitation sections of the Housing Act of 1949 might very well open the way to eliminate the slums which choke the downtown areas; and large regional shopping centers will absorb enough of the buying power of the suburban areas to ease traffic and parking conditions downtown.

If and when this happens, downtown will again be able to serve satisfactorily its original trade area, functioning for the size of city for which it was originally built; and in addition it will become more desirable as a principal center for social and cultural activities.

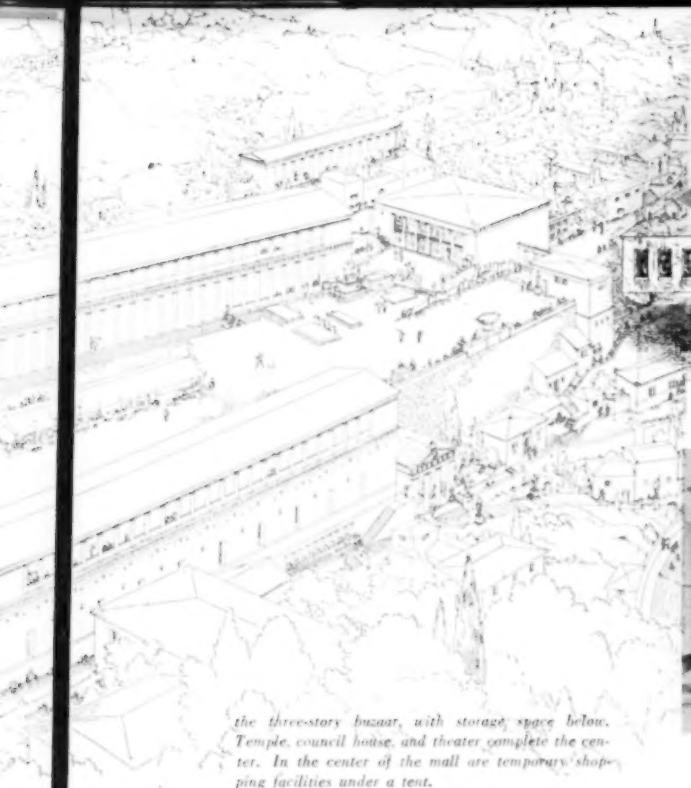
Regional shopping centers may well be regarded as satellite downtown areas, offering much of what the metropolitan centers give and adding the decisive advantage that, if they are designed correctly and scientifically, they will take care of today's needs and today's living. They will welcome the hordes of automobiles which approach them, providing easy access and ample free parking space. They will offer restfulness, safety, and esthetic values. They can become places where suburbanites will visit for a short shopping trip, and also centers where they will want to congregate for many hours—both days and evenings.

•

The need for social and cultural activity has by no means disappeared in our times. It has been artificially stifled by the price tag attached—a price tag that spells exhaustion, loss of time, high transportation and parking costs—all efforts out of proportion to the gain.

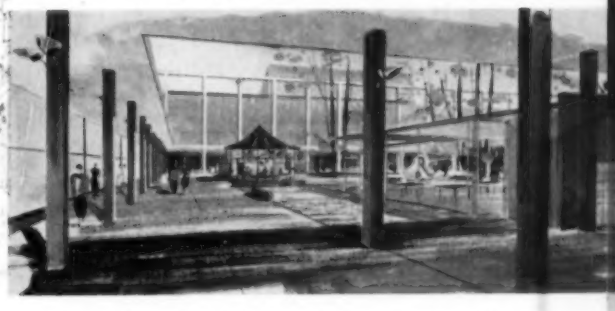
With the advent of the large shopping center there will be a new outlet for that primary human instinct to mingle with other humans—to have social meetings, to relax together, to enjoy art, music, civic activities, the theater, films, good food, and entertainment in the company of others.

What are the requisites to the fulfillment of this function of a social and cultural center? First of all, to include, from the inception of the general plan, attributes which go beyond the commercial needs:



the three-story bazaar, with storage space below. Temple, council house, and theater complete the center. In the center of the mall are temporary shopping facilities under a tent.

Great Cloth Market, Leeds, established by Edward III (1312-1377 A.D.) was another mall-type center.



Proposal by Victor Gruen for a contemporary mall, keeping the amenities and the facilities of old.

auditoriums lecture rooms exhibit rooms reading rooms
theaters restaurants of many types club rooms community centers
libraries children's day nurseries boy and girl scout dens

Second, to take advantage of the existence of public areas—such as garden courts, malls, arcades, terraces, covered walkways—for relaxation and amusement. If such areas are properly planned, they will give opportunities for outdoor activities. There will be greenhouses, play areas, band shells, outdoor theaters, outdoor fashion shows, miniature zoos, outdoor shows of painting and sculpture, flower shows, picnic grounds.

Third, to realize an architectural concept and treatment which offer variety without confusion, colorful appearance without garishness, gaiety without vulgarity; a concept which creates an atmosphere in which the task of shopping becomes restful and fun; an architectural treatment which, by application of scientific design, eliminates what appears as an ugly rash on the body of our cities—the countless smoke stacks, telephone poles, power poles, dangling wires, air conditioning and ventilating ducts—treatment which pays design attention to that ugly duckling of our urban civilization called "street furniture." The myriad warning signs, lamp posts, bus-stop signs, directional signs, hydrants, waste baskets, letter boxes—all must be redesigned, co-ordinated, and brought into a disciplined pattern.

Here, at least, is an opportunity for contemporary art to find a place as part of a new architectural concept. Here is space for sculptures, murals, fountains, mosaics on floors, and mosaics on walls.

That this is a thoroughly practical concept becomes obvious if one considers that a shopping center which is a civic, cultural, and social center will develop magnetic powers to attract more people and hold them for a longer time than if it were only a commercial center. More people—for more hours—mean cash registers ringing more often and for longer periods.

In the anarchistic wilderness of our cities there have existed up to now only a few cases of organized architectural development: civic centers, public parks, college campuses, industrial centers. Now a new opportunity for the creation of co-ordinated, planned, and spirited architectural units exists in the large shopping centers. This new architectural design category is different in one very important aspect from the others. It is neither publicly owned nor completely controlled by one institution.

The shopping center is a conscious and conscientious co-operative effort by many private commercial enterprises to achieve a specific purpose: more and better business. This co-operation, in order to be effective, must be enlightened and wholehearted. Individual wishes and needs must be secondary to the needs and requirements of the center as a whole. This *does not* mean subjugation of individual wishes and disregard for the individual needs of the tenant stores. The design problem of the shopping center is the *co-ordination* of these needs and wishes with each other, and with the whole. Conformity, but not uniformity, must be the aim. In addition, if it is planned to integrate with the community, the new shopping center can be a boon, rather than a threat to the privacy and the stability of residential areas.

The achievement of complete co-ordination becomes the mainspring of the architect's work. It influences his work through the entire project, from the moment the search for a site starts, through the stages of land-usage planning, traffic planning, merchandising of the center, to the selection of colors and materials.

In creating this new architectural design category, we will be wise to observe what has been done in the past and in other parts of the world. During many ages and in many lands, such combinations of cultural, social, and trade centers have existed. Today's shopping center has an opportunity to give us again that desirable gathering place, planned in a co-ordinated fashion, for the automobile age. In the first excitement of the industrial revolution we temporarily lost our feeling for planning, organization, and architectural beauty. The modern shopping center is a clear expression of the desire to regain these advantages, translating, past experiments into forms suitable for our mechanized life.

Because shopping-center planning is in our era a young and new category, it is impossible to pass judgment or make final statements about any phase of the subject. The contributors to this issue have worked actively for many years on problems of shopping-center planning. This experience has had a sobering effect on us; we have learned enough to realize how little we know. Therefore we decided early in the discussions that this issue of PROGRESSIVE ARCHITECTURE would not be a recipe for cooking up the shopping center. It will not be a complete history of shopping centers, nor a critical review of existing or projected ones, nor a handbook of procedures. It will, rather, attempt to present and spotlight the problems involved. It will mention ways and means that have been found practical, without any claims that they are necessarily the best ones. And it will, we hope, provoke thinking and discussion.

Northgate, at Seattle, Washington—designed by John Graham & Co., architects and engineers—recognizes community needs by providing a children's playground with a carnival atmosphere. It fosters community pride with "the largest Christmas tree in the region," thus emphasizing the fact that commerce thrives where social gathering is made easy and pleasant.

the definitions

A shopping center is different things to different people. To the customer it means a group of stores with ample parking, no traffic worries, minimum walking distances, variety of merchandise, and a pleasant atmosphere in which to shop.

To the merchant it means a business location with adequate parking, tremendous drawing power, all possible customer conveniences, protection against irresponsible competition, stable rental value, efficient service facilities, flexibility in floor space, substantial and well-designed buildings, landscaping—in short, a location wherein all merchants band together to furnish services none could afford singly and, in turn, to receive services and trade which could not be given to them singly.

Modern shopping centers are relatively new, the concepts are changing, new solutions are constantly sought, new problems arise. There is no tradition for the auto-age regional shopping center, no set of rules, few set concepts, and a great deal of misunderstanding and misinterpretation, due mainly to the lack of a common shopping-center language. In the interest of clarifying some of the most commonly misunderstood terms, our interpretation follows:

the center

Neighborhood Shopping Center: Serves 10,000 to 20,000 people. Has a core of foods and drugs. Sells mostly convenience goods.

District or Suburban Center: Serves 20,000 to 100,000 people. Has a core of large supermarket or small department store. In addition to convenience goods, sells apparel, hardware. Adds depth to merchandise.

Regional Shopping Center: Serves a population of 100,000 or more. Has one or more major department stores as a core. Has great depth and variety in merchandise.

the building areas

Gross Area: Total floor space of all buildings in a project. This figure should be the basis for quoting building costs.

Rentable Areas: That part of gross area within buildings which is used exclusively by individual tenants, and on which rent can be obtained, usually the difference between gross area and common areas within buildings.

Common Areas: Areas, such as the mall, corridors, tunnels, public stairs and elevators, ducts, truck routes, loading docks, public and employee rest rooms not in individual stores. These are not rentable but their maintenance charges are levied *pro rata* against tenants.

Sales Area: Rentable area minus storage space.

Service Areas: Part of common areas used for servicing, such as truck tunnels, delivery docks, access corridors, etc.

the site areas

Building Area: The ground area of the enclosed building or buildings.

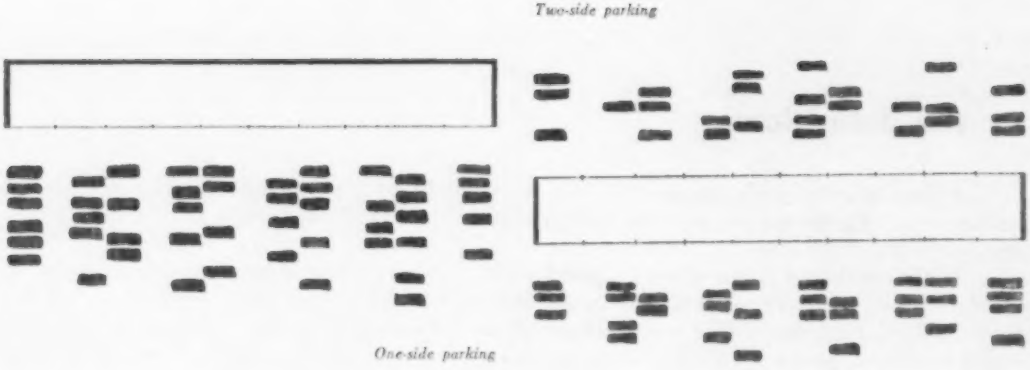
Covered Area: The ground area of the enclosed buildings plus all roofed areas, such as covered walks, shelters, etc.

Road Area: The area of all main private roads not directly serving parking stalls. Road area includes all feeder roads, perimeter roads, truck roads, ramps, etc., but does not include parking aisles or public streets.

Service Yard: The area devoted to servicing the center which is not enclosed or roofed. It includes rubbish collection and disposal stations, truck-loading spaces, maintenance yards, etc.

Parking Area: All space devoted to parking, including aisles, minor walks, islands, minor landscaping, and other features incidental to parking. Parking area is sometimes subdivided into customer parking, employee parking, and overflow or reserve parking.

Reserve Area: Area undeveloped or temporarily developed, intended for future use coincident with the shopping center. Such use may be expansion of buildings, parking, or both.



parking

Parking Ratio: The relationship of *parking area* to *gross area.*

Single-Level Parking: All parking on grade and at the same level. Ordinarily this level coincides with the major shopping level.

Landscaped and Incidental Area: Major landscaped areas, such as courts, groves, park strips, and buffer areas. Incidental areas include major walks, free playgrounds, and other recreational features of the shopping center.

Site Area: The gross area of the property. Includes all space within the property lines.

Split-Level Parking: All parking on grade, but at two levels. Ordinarily used with two sales floors, each level of parking coinciding with a shopping level.

Double-Deck Parking: Two levels of parking with one level at grade, the other elevated or depressed. Used where area is insufficient for single-level parking.

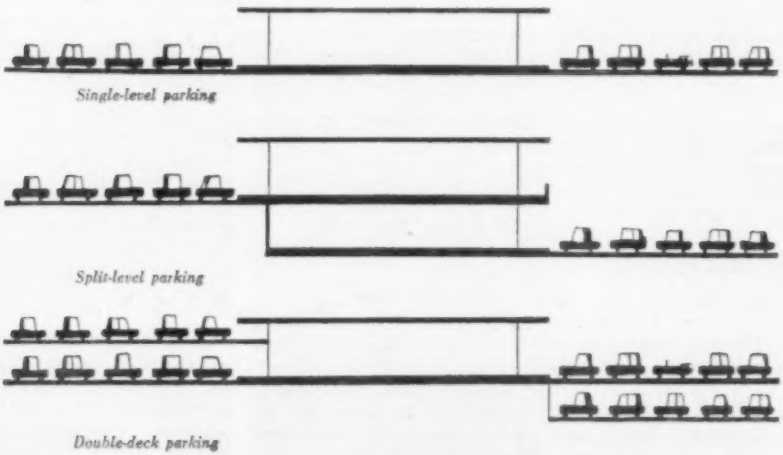
One-SideParking: Peripheral parking on one side of the building, single or split-level or double-deck.

Two-SideParking: Parking on both sides, as used with a single-store depth. Either single, or split-level, or double-deck.

economics

Economic Analysis: The process of analyzing and interpreting all economic data relating to the shopping center, including patronage expected, volume of business, expense of operation, probable rents by stores, net income of the project, financing requirements, and economic feasibility in general.

Trade-Area Pattern: The final delineation of the boundaries of the trade area as affected by distance, arterial highways, obstructions caused by extensive land use by large institutions, golf courses, etc., and the limitations placed by relationship to rivers, railroads, and the downtown area itself.



Gross Population: The total population of the trade area.

Net Population: The population which can be expected to trade in the proposed project after discounting for distance and other factors, such as access, character of the center, nature of the population, etc., all of which can affect the degree of patronage.

Primary and Secondary Trade Areas: The primary area is the more immediate area within which the center can expect to do a substantial proportion of the volume of food and drug business. The secondary trade area is the more remote area whose patronage of the center will be largely for apparel, furniture, general department store sales, etc.

Trade Habits: The existing pattern of trade, prior to the establishment of the center, that has developed over a period of years, and is influenced by the location of existing stores, including the effectiveness of leading downtown department stores.

Disposable Income: Same as Department of Commerce definition.

Consumption Expenditures: Same as Department of Commerce definition.

Retail Expenditures: The portion of disposable income which is spent in retail stores.

Gross Potential Sales: Total retail sales made to all residents in the trade area, regardless of where the purchase was made.

Net Potential Sales: Total retail sales that could be expected to be made to the net population tributary to the proposed shopping center.

Per Capita Retail Sales: Total retail sales in a given area, divided by the population of that area.

Store Integration (Pre-merchandising): Analysis of the proper relationship of stores of various categories, with the purpose of developing their highest volume of sales.

the team: architect and economist

Fallacy: "The buildings are incidental; only the trade potential counts."

When Victor Gruen and Larry Smith started to work on this issue, the members of their organizations were asked the question: who is more important and who, therefore, should co-ordinate all work for shopping center planning—the economist or the architect?

One of the economists answered, "The ultimate goal of the owner is to build a satisfactory financial statement—and, only incidentally, some buildings. Therefore, the economist should be in full charge."

One of the architects answered: "A poorly planned center, uninviting in appearance, erected in accordance with no matter how brilliant an economic analysis, would be a failure. Therefore, the over-all responsibility should be the architect's."

They both have a point. It is unquestionable, as the economist has stated, that the primary aim of a commercial project is realized profit. To arrive at such realization, two factors must be present: the market potential and the correct tapping device. The analyst will detect, forecast, evaluate the potential. The architect will design the most efficient organic and economically sound environment for marketing—the most effective tapping device he can achieve for the given potential.

A competently designed group of buildings located in an area of poor economic potential will be as much a failure as an oil well sunk where no oil-bearing strata exist; and no amount of architectural skill will save it. On the other hand, once the potential is established, a poor handling of the architectural problem will represent an economic waste, bring lower profits and will, in time, hasten failure against the competition.

So there is no single point where analysis can be divorced from design. Analysis without design is,

Fallacy: "The decisive factor in design is the structural system."

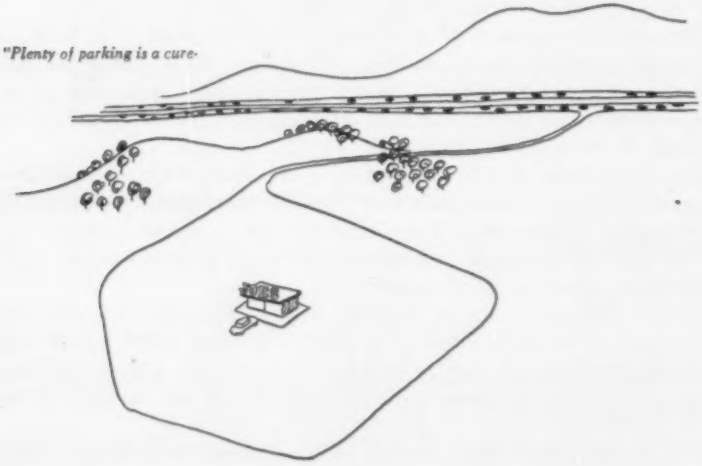
at best, a theoretical exercise. Design without analysis is altogether unrealistic. A building constructed on either basis alone faces intolerable risks.

Since analysis cannot be separated from design, it is useless to argue who and which is more important. Shopping-center design is teamwork and the ideal team consists of the architect who is fully aware of the rules of our economy, and who has wide knowledge of city planning and the problems of the retail trade; and the economist who is fully aware of the tenets of contemporary architectural and structural design, whose experience with problems of financing, analysis of trade potentials and merchandising is great, and who has enough imagination to project into future trends his charts and statistics drawn from the past.

These two central figures of the team should be associated with a large number of teammates: civil, structural, mechanical, and electrical engineers; traffic planners; merchandising analysts; landscape designers; leasing experts, and many more. All these team members must exhibit infinite patience, straightforward thinking, and comprehensive understanding in co-operating with each other, with the owner, with city and state authorities, financing institutions, highway commissions and, last but not least, with the tenants.

Such a team should be able to avoid the human but dangerous tendencies to overestimate the importance of certain links in the chain of analysis and design. It will never subscribe, for instance, to any of the personal dogmas which are illustrated here by Karl Van Leuven's cartoons. It will recognize that the process of planning a shopping center is one of fitting together, co-ordinating, revising, judging ideas, views, prejudices, statistics, and facts. The problems will stem from all the individuals involved in the design, in the financing, the upkeep, and the maintenance of the completed center. The solutions will come from teamwork, with the architect and the economist acting closely together as co-ordinators.

Fallacy: "Plenty of parking is a cure-all."



THE PHOTOGRAPHS of shopping centers shown on this and the following pages, as well as the illustrations elsewhere in this issue, have been selected by the authors and the editors to illustrate specific points made in the articles; they are not intended to represent the "best" or the "most beautiful" examples that could be chosen. The pictures on this page show admirably the value of landscaping in achieving the integration with, and the benefit to a community that a well-planned shopping center can provide.

landscaping

Lido Shops (above), Newport Harbor, California, designed by Dwight Gibbs, architect. Entrance to the super-market is inviting because of its rich planting.

Bullock's Pasadena (left), California, Wurdeman & Becket, architects. Landscaping within parking-area dividers is both functional and attractive.

Town & Country Center (right), Palm Springs, California, by A. Quincy Jones, Jr., architect. Landscaping and buildings have been planned together to draw customers to first- and second-floor shops.

Baldwin Hills Shopping Center, Los Angeles, California, by Robert E. Alexander, architect. This project is an excellent example of the point made by the authors in the opening section that shopping centers offer a new opportunity for unified design and planned architectural organization. It also illustrates the point (stressed later in the section on Storefronts and Signs) that the basic architectural concept must be strong—and capably handled—to achieve that unity within the competitive economy that controls merchandising. Here, show-window lines, roof lines, canopy lines, carry through a sense of scale and co-ordination, without limiting use of materials or display techniques.

unified design

"arcades"

The earliest examples and the most recent, in our own time, have made use of the age-old device of an arcade or one of its modern equivalents to protect shoppers and shelter store fronts. Bellevue Shopping Square (above), Bellevue, Washington; Bliss Moore, Jr. & Associates, architects: overhang shading walk past the restaurant. Colonnaded walk at shop center (left), Greenhills, Ohio; planned by the U. S. Resettlement Administration in 1939.

Merchants have learned that amenities will "attract more people and hold them for a longer time," which means, as is pointed out in the opening section, "cash registers ringing more often and for longer periods." Here (left) is a resting place at the sheltered entrance to Halle Brothers branch store in the Shaker Square shopping center, Cleveland, Ohio. Robert A. Little and Conrad, Hays, Simpson & Ruth, architects.

resting spots

At Bullock's-Pasadena, near Los Angeles, California, a spot is provided at the entrance portico for chairs set in comfortable and agreeable surroundings. Architects Wurdeman & Becket planned here a two-level parking space, the upper section of which is adjacent to this resting spot.

THE STEPS IN SHOPPING CENTER PLANNING

The planning procedure for a shopping center will go through the following stages:

1. *Economic Analysis.* Planning must start with an economic analysis of the prospective trade area, based on the seven points which are discussed in the section which follows:

2. *Decision on Site.* In most instances, the builder is already in possession of a piece of property which he considers adaptable for shopping-center purposes. If the economic study was undertaken for the purpose of selecting a shopping-center site, then the actual purchase of the property should be the next step. This subject is discussed on page 80.

3. *Preliminary Architectural Studies.* Certain architectural work should proceed before the economic analysis is complete. As soon as a site of proper location and adequate size is available, preliminary architectural studies should be undertaken simultaneously with the economic investigations such as: soil tests; study of drainage conditions; study of such site problems as contours, shape, improvements of adjoining property; preliminary engineering and traffic studies. As soon as the site is approved, the architect should proceed with land-use studies and develop a land-usage plan that is adaptable to the site and that is capable of accommodating a project that can fully exploit the potential of the trade area (*see chart at right*).

4. *Joint Study and Agreement upon Land-Usage and Merchandising Plan and Traffic Planning.* At this point, the land-usage plan (discussed on page 84) should be the subject of a joint study by (a) the owner, (b) the economic consultant and the architect, (c) the prospective major tenant, (d) the mortgagee or finance source. It should be modified to whatever extent necessary to bring about a meeting of the minds, at which point detailed architectural plans should proceed.

5. *Detailed Architectural and Engineering Studies.* Architectural, mechanical, and engineering design should now go ahead, along with traffic planning (see page 87), ground-use and site planning, utilities planning, the planning for services.

6. *Tenant Selection.* Determination of the ideal tenants for the type of center decided upon and the preparation of sales material for examination by those tenants.

7. *Major Department Store.* At this point, it is highly desirable to complete negotiations with the major department store tenant. The result of such negotiations will have an important bearing on the success of subsequent negotiations with other major tenants and financial institutions.

8. *Other Major Tenants.* Active lease negotiations for other major tenants can be undertaken at any point, either by the project manager in the employment of the owner, or by brokers, or by a combination of both.

9. *Financing.* Application for mortgage financing should be made during the initial stages, in order to secure assistance and guidance from these institutions. At this stage, negotiations should have progressed to the point where at least a conditional financing commitment can be obtained.

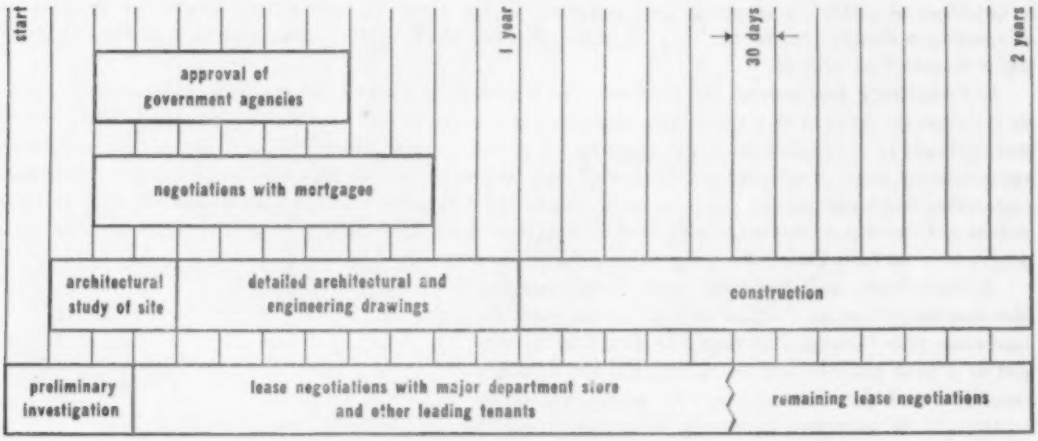
	% Class	% Sub-Class
1. **Parking**	10	
Size		4
Location in Relation to Stores		3
Access to Parking Lot		3
2. **Store Accessibility**	8	
To Pedestrian Traffic		1
To Parking Lot		6
To Public Transportation		1
3. **Pedestrian Traffic**	8	
Induced by Project		3
Exposure of Stores		3
Lack of Interruption		2
4. **Advertising Value**	7	
Individual Stores		3
Project as a Whole		4
5. **Location of Tenants**	8	
By Type of Store		4
By Class of Store		4
6. **Efficient Layout of Stores**	6	6
7. **Flexibility**	10	
For Individual Stores		5
For Project as a Whole		5
8. **Comfort & Convenience of Customers**	5	5
9. **Economy of Operation for Tenants**	6	
Interior		2
Deliveries		4
10. **Efficient Use of Ground**	7	7
11. **Maximum Rents**	15	15
12. **Minimum Cost**	10	
Capital		6
Operating		4
	100%	100%

Chart (right) *for point-by-point evaluation of land usage, at time land-use plan is made. Percentages assigned may vary from project to project depending on specific conditions.*

10. *Public Agencies.* Approval by public agencies, such as planning commissions, zoning commissions, city and county engineering staffs, and the city council will be required at different stages of the development. The actual circumstances in each case will dictate the timing.

11. *Construction.* When the above ten steps have been taken, actual construction can begin.

The time table indicates the approximate amount of time that should be allowed for various stages of work. It assumes the most favorable circumstances.



the economic study

If one were asked to point to the most important economic aspects of a shopping center, he would certainly name the following:

(a) Single ownership, which gives to the owners a measure of control not enjoyed in any other type of retail-store grouping.

(b) Co-ordinated planning, which makes it possible to plan all aspects of the center, including architectural and engineering design, economic studies, traffic, finance, etc.

(c) Complete representation of all stores and services in a single integrated area allowing for one-stop shopping.

There are many other distinguishing features of a shopping center but the above three points, in the opinion of the authors, represent the basic factors that distinguish a planned shopping center from an ordinary group of retail stores.

Two factors, characteristic of modern urban areas, tend to favor the success of regional centers:

1. *Population Growth.* One of the outstanding features of population growth during the last decade is the continued concentration of people in large metropolitan areas and the strong tendency for that population to disperse into the suburban sections of these areas. Generally speaking, the growth of retail trade facilities has not kept pace with this growth.

2. *Existing Facilities Unsatisfactory.* The effect of the automobile is just beginning to hit us with full force. It is forcing a complete rearrangement of arterial patterns. It is forcing a redevelopment of downtown areas, and also forcing a complete redesigning of merchandising techniques. The one-stop regional shopping center appears to be one of the principal results of increased automobile use and, by comparison, existing facilities now appear to the customer to be completely inadequate and unsatisfactory. As a result, new shopping centers have not experienced too much difficulty in transferring the allegiance of customers from the use of inconvenient retail facilities to the new, streamlined shopping center.

economic dangers

In spite of the inherent advantages that tend to favor decentralization of facilities generally, there is ample opportunity for serious mistakes on the part of the owner. Here are some of the penalties if he fails to plan his center to fit the exact needs of his trade area:

(a) If he builds his center too large, his construction costs and operating costs will blot out his rental returns. He will have a poor investment opportunity on his hands, making financing difficult if not impossible.

(b) If, on the other hand, he builds his center too small, he will be inviting competition which, if it takes the form of a competitive shopping center as is most likely, will be most destructive.

(c) If he fails to diagnose accurately the character of the trade area, and therefore the character of the shopping center that should be built to serve that area, he will find himself in possession of a center that never exactly clicks; and his selection of inappropriate tenants will produce years of low rents before the situation can be remedied.

(d) If his stores are not skillfully arranged in order to capitalize on peculiarities of pedestrian traffic by the proper

arrangement of small shops in relation to other stores, he can easily lose the top 25% to 50% of his bonus rent potential.

(e) If he has not made a proper allocation of operating costs, parking maintenance, utility expenses, etc., he may be carrying the burden of any increase in operating expenses that will eliminate any opportunity for surplus rent.

There are many other pitfalls in the path of a project of this size, but those mentioned above are the most serious and, as a matter of fact, the most typical. Most shopping centers, because of weaknesses that might have been avoided in the planning process, will have to be satisfied with from 60% to 90% of the full potential of their location. The ability of the project to earn the last 10% to 40% of potential income distinguishes the well planned center from the ordinary, and the added value that comes from careful planning can easily amount to several times the cost of the planning process.

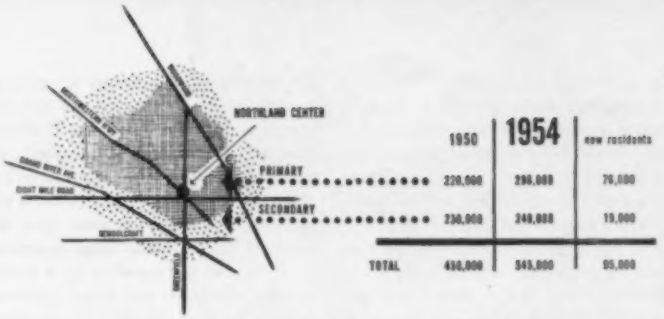
economic analysis

The beginning of the planning process is the economic analysis. It must be based on seven points of study, some of which are purely market analysis, and others which call for a background of architecture and land planning with a knowledge of the relationship between these physical factors and merchandising.

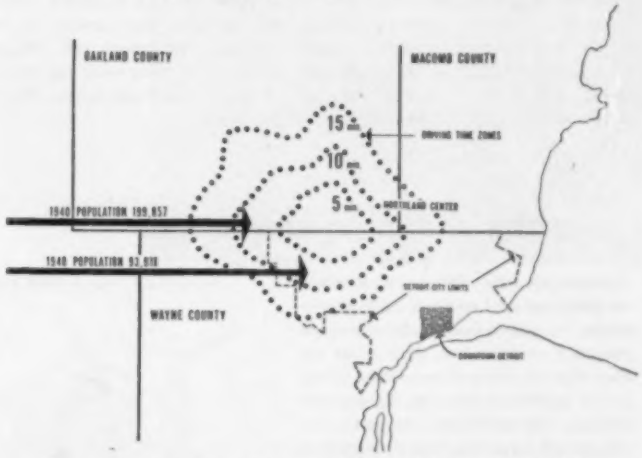
1. *Population.* Standard procedure based on the use of the Bureau of Census data, broken down by small enumeration districts, so that groups of population can be studied in relationship to physical factors. This data must be secured for a broad area that can later be curtailed as the size of the trade area is gradually evolved.

2. *Income and Purchasing Power.* This type of information still has to be secured largely on the basis of observation in the field or through the medium of special studies. Data from the 1950 Census are not readily available and, for most projects, the information is not sufficiently detailed to be adequate.

3. *Competition.* Here again it is necessary to depend on studies of the particular case, since census information is rarely in a form that is capable of being adjusted to use for any particular trade area. Furthermore, the purpose of the study of competition in any trade area is more to determine the capacity of existing facilities, rather than the amount of business



Study indicating that rapid anticipated growth is greatest in the primary trade area for J. L. Hudson's Northland project near Detroit, planned by Victor Gruen Associated Architects & Engineers, with Larry Smith as economist.



Study showing that proposed Northland Center will tap rapidly growing section of city, and even more rapidly growing suburban area.

retail expenditures of trade area residents

	per capita	expenditures of 1954 population 545,000 ($000's)	expenditures of 1950 population 450,000 ($000's)	1950-1954 population increase 95,000 ($000's)	sales planned for northland ($000's)
food	$315	$171,700	$141,800	$29,900	$ 5,000
department	180	98,100	81,000	17,100	27,000
variety	35	19,000	15,700	3,300	1,750
apparel	80	47,000	39,000	8,300	12,400
furniture	68	37,000	30,600	6,400	2,900
hardware	75	40,900	33,800	7,100	600
drug	49	26,200	21,600	4,600	1,000
eating & drinking	93	50,700	41,800	8,900	1,750
other	115	62,700	51,700	11,000	2,750
TOTAL	$1,017	$554,200	$457,600	$96,600	$55,750

Estimate of increasing retail expenditures due to population growth, based on statistics obtained for present per capita spending.

The nature of the competition is also important.

being done in those facilities. Of equal importance is the location of the competition in relation to the proposed site.

4. *Access.* Involved here is the question of accessibility to the center by automobile, public transportation, and foot traffic. (This is discussed on pages 87-89.) It is hard for many builders to realize that, with the completion of their project, they themselves will have created a very sizable traffic problem which should be completely visualized and planned for from the beginning.

5. *Physical Characteristics.* This is primarily an architectural question, which is discussed in detail later. Certain physical features may dictate a two-level structure or double-deck parking, or an unusual arrangement of the department store in relation to the rest of the shops, or a completely different treatment of parking areas. Any and all of these can have an important effect on sales and therefore must be regarded from the economic, as well as from the architectural standpoint.

6. *Character of the Project.* Most of the success of the center depends upon the ability of the builder to judge accurately the trade area and therefore, by a proper selection of tenants and proper provision of services, to exploit fully his merchandising potential.

7. *Tenant Selection.* There are very few things that are more important in the establishment of a successful center than the selection of ideal tenants. The aggressiveness of the tenants can influence the limits of the trade area, and the volume of business, as much as any other single factor.

It is important to recognize the basic differences that distinguish the planning of a shopping center from ordinary commercial construction. Ordinarily, the construction of a single store building represents a small addition to the total retail floor space of the business community. In many cases, it means no addition at all but simply a replacement. As a result, the sales activity of the new tenant brings about little or no disturbance to the existing equilibrium.

A shopping center, on the other hand, is equivalent to adding the retail space of a small city to existing facilities which, presumably, were fairly adequate up to the opening date of the new project. In such a situation, new facilities must be well located, well planned, and well timed.

the shopping-center site

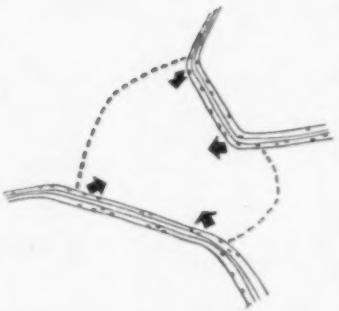
Unfortunately, the site for a proposed shopping center has often been chosen before the architect and the real-estate economist are consulted. If this has not been done, the site selection should follow, and be greatly influenced by, the economic analysis. The preliminary economic survey should have determined whether a demand for additional shopping facilities exists, the extent of that demand and its nature, the areas of most rapid growth, the areas of greatest future expansion, and the nature and extent of existing competitive facilities. On these findings, architect and economist will make recommendations.

From the dollar-volume estimate of demand, the architect and economist can determine in a preliminary way the store types and the approximate square footage of building necessary. Parking and traffic needs can also be determined (by methods discussed in a later section). With the number of cars and the total store area established, the architect is able to project the approximate total area required for the center, and the search for the site can begin.

What are we to look for in selecting a shopping-center site? In an effort to answer this question, the essential features and characteristics of the ideal site are listed in the order of their importance:

Accessibility. This is, in our opinion, the most important consideration for either a district or a regional center. A shopping center is designed for the customer behind the wheel and, if free and easy access from the highways to the perimeter roadways and into the parking lots is not achieved, most of the convenience advantages the center can offer are lost. To achieve this maximum convenience, the site should be at, near, or readily accessible to at least two major highways. These highways and access roads should have considerable reserve capacity, over and above their present and projected needs, because the traffic movement to and from a regional shopping district (parking 5000 to 10,000 cars, and increasing previous traffic two or three times) will completely alter the existing traffic pattern.

. . . easily accessible

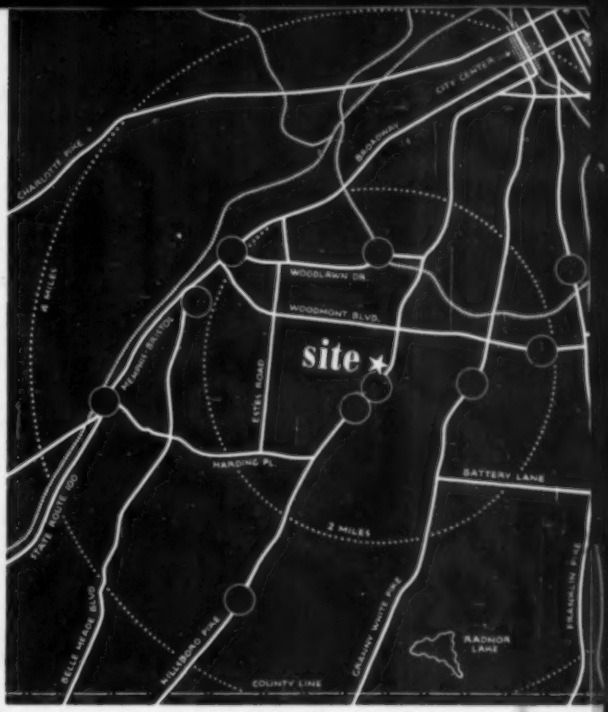


When considering accessibility, it must be borne in mind that the old concept of the "hot spot" location is not necessarily valid for a shopping center. If the entrances and exits to the parking lot are too near a major intersection, the interference of through traffic can cause a major congestion problem.

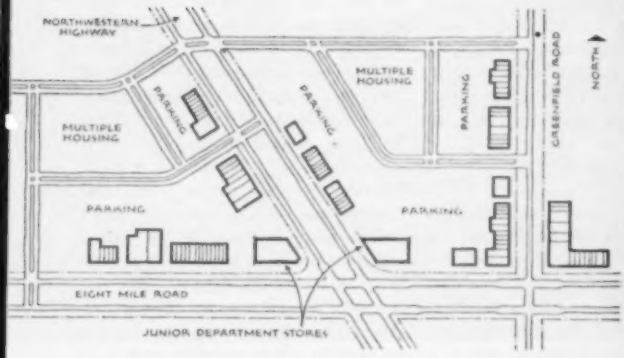
Sufficient Size. The shopping-center site should have not less than the minimum acreage that the architect and the economist have estimated as necessary to serve adequately the potential of the area. The incomplete shopping center invites the development of competitive centers nearby, and the pirating of its parking facilities by fringe promotional activities on the

. . . all in one piece

Analysis of a proposed center in Tennessee by Larry Smith & Company shows the location of present retail stores. A study of their capacities will help evaluate the nature of the competition to be expected in the area of the site under consideration.



Typical uncontrolled strip commercial development: proper zoning could cure this.



property immediately surrounding it—and can end in a congested, disorganized, uncontrolled commercial slum.

The site under consideration should be all in one piece, and not divided by major or even minor highways that cannot be removed or rerouted. Nor should it be several pieces, subject to subdivision controls, which would make replatting difficult or force artificial divisions or restrictions on the development of the center.

In addition to the minimum acreage required for the shopping center itself, sufficient land should be readily available around the center so that buffer zones and buffer uses can be introduced to protect the surrounding property and prevent unsound economic development of the areas near the center. This buffer space, which can be devoted to landscaping, parkways, secondary non-commercial uses, or multiple-housing, will not only give the shopping center the opportunity to expand beyond the present shopping requirements but also protect the values of the residential area which now, or will in the future, neighbor the project.

Parking Area Possibilities. The site should have no physical characteristics which make the development of large parking areas costly. The act of parking the car must be simple, trouble-free, require little or no attendant direction, and be offered the customer at no cost to him.

. . . room for expansion, buffer areas

Multi-level parking, by its very nature, is not simple nor trouble-free and, because it is more costly to provide, will have to be charged to the customer in some form or other.

. . . no grading complications

Nearness to Utilities. Usually the only large parcels of undeveloped land available or desirable for shopping-center projects are on the fringe of the city where water, power, and sewers are limited or nonexistent. The power requirements for a shopping center are heavy and (in addition to the normal sewerage requirements) the large areas of impervious material

. . . near adequate utilities

necessary to provide adequate parking create a new storm drainage problem. Hence the architect must be satisfied that, if these utilities are not on hand, the program for their development is sufficiently advanced to guarantee their availability by the time construction is completed.

Favorable Zoning Conditions. In gen-

eral, sites suitable for shopping centers do not occur in areas already commercially zoned. Usually they are undeveloped farmland, ripe for residential development, or areas which have been reserved for speculative purposes and are already surrounded by well built-up, protected, residential sections. Present city planning sets aside large areas of organized space for potential commercial development but, in the past, the practice has been to zone for commerce in strip fashion along the highways or streets.

Because of the unfortunate history and experiences of extensive strip-commercial developments in residential areas, any attempts to re-zone usually encounter intense local opposition which must be met by a carefully organized educational program. The owner must be warned to weigh the political temper in the area before he embarks on an extensive program which may not be realized because of community opposition. A new zoning category for planned shopping centers is possible, and has been adopted in some instances. If it is carefully drawn, it will grant certain new rights and impose certain new restrictions.

Comparative Excellence. It is essential that the project be in an impregnable economic position; hence the site must be, from all points of view, the *best* in the entire area. It must be impossible for another project similar in size and scope, but better located, more convenient, and protected, to be introduced and, because of its improved services, to compete successfully with the center. A few minutes additional driving time, or the acquisition of another piece or two to complete the parcel, may be all that is required; but the economist and the architect must take a strong position in this matter, since the future success or failure depends largely on the center's ability to completely dominate the area.

Nearness to Homes. The site should be in or near an already established and well developed residential area or in an area so ripe for development that, by the time the shopping center is constructed, the residential growth around the center will be well advanced. Certain types of activities necessary to make a complete and well rounded one-stop shopping center, such as drug and food stores, need for their healthy growth the day-to-day pull of neighborhood shopping requirements.

Reasonableness of Price. This factor must be carefully considered. The cost of the large areas of parking required must not be disproportionate to their value. If the site is truly the best in the area, it may sometimes be advisable to pay a premium to secure the economic position of the project.

●

Sometimes, unfortunately, the exact right spot can't be found, and it is then that the reports, studies, and analyses of the architect and economist are of the greatest value and importance. Even though accessibility seems to be the most important single consideration, it may be that in a particular site all of the other factors are so importantly solved and satisfied that the considerations of accessibility are secondary. The problem then becomes a mechanical one of providing the best possible scheme for the distribution of traffic that can be achieved with the limited means at the architect's disposal. Northgate, near Seattle, reaches out by secondary roads to the main highway. Framingham, near Boston, with a relatively short frontage along the major limited-access highway, provides an independent circulatory road around the entire project. At Northland, planned for Detroit, the center was pushed well back from the two major highways which intersect at one of its corners, and divided road systems were introduced within the site to tap and increase the importance of the secondary roads which surround the area.

There are many cases where the only available site has been smaller than the economic survey indicated necessary but, because it was good in other ways, was selected by the owner. At Bay-Fair, planned for Oakland, California, the problem of limited space was solved by multi-level shopping, making space available for split-level parking. At Skokie, planned for Chicago, the problem of extensive shopping facilities on a limited site has been solved by multi-level parking.

Sometimes it is necessary to select a site with such a difficult terrain that parking all on one level is impossible. This problem has been solved by the interrelationship of the levels, at Canoe Plaza Shopping Center, planned for New Jersey, and at Woodridge Center, being planned for Houston, Texas. Expediency might even force the selection of a site split by a major highway. But the example of the May Company and the Broadway Store center, near Crenshaw Boulevard in Los Angeles, indicates that almost any expense is justified to reroute such a highway, either over or under the project. At Montclair, in Houston, the major freeway which bisects the property will be rerouted overhead, to serve the extensive roof-deck parking areas which the irregularities of the site have made necessary.

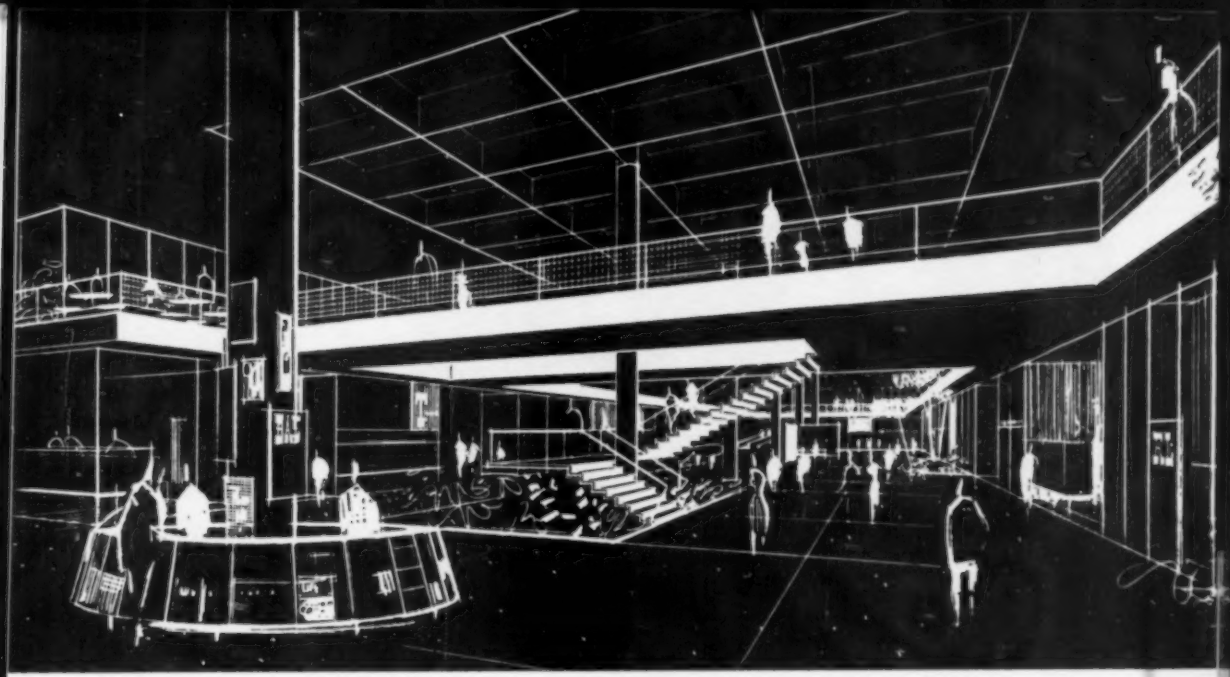
Sometimes (too often!) the architect is confronted by a site optioned or purchased by the owner without the benefit of study or survey. In this case, the architect must insist, for his own and the owner's protection, that a proper review is undertaken by a competent economic analyst before he accepts the project and prepares any plans for the site.

In attempting to approach as nearly as possible to the ideal site, we feel the architect, the economist, and the owner should always remember that the customer in the automobile is the element around which the entire concept of a shopping center has grown; that it is not difficult to persuade her to drive a little farther if this will lead to shopping in an atmosphere of maximum convenience, comfort, and uncomplicated surroundings.

land usage

The site planning of a regional shopping center must be done by the architect, with the closest collaboration of the economic consultant. At each stage of its development, the site plan picks up additional attributes, solves additional problems, and creates new ones which must be solved again. The planning stage is a fluid one, and no plan can be frozen until the multitude of requirements is fulfiled. Throughout the planning phase, seldom is one stage distinct from another. But, in order to clarify the planning process, the various steps leading up to the final site plan are explained separately.

The land-usage plan is actually an assignment of land to the various activities which take place in a shopping center. The required rental area is obtained from the economic analysis; the necessary service and public areas are added to this requirement; minimum parking requirements are estimated; space is assigned to roads, landscaping; and other incidentals. Then, working with the special characteristics which every site has, plans are blocked out to fit the land requirements.



Two-level merchandising (above), *combined with split-level parking, allows high land coverage at a center planned by Victor Gruen architect. A roofed-over mall permits some concessions to be planned without store fronts—true "open-front" shops.*

Many schemes are tried and discarded in the search for the one meeting most of the principles of good shopping-center planning:

1. A store group which can be merchandised to provide the greatest interplay between stores.

2. Minimum walking distances, both from the parking areas to the stores and also within the store group itself.

3. Elimination of *all* poor store locations and difficult or isolated parking locations.

4. Separation of foot and auto traffic, and an elimination of all service facilities from the public consciousness.

5. A center efficient to operate.

6. A unified building group which will look like a shopping center, *not* an assemblage of miscellaneous stores.

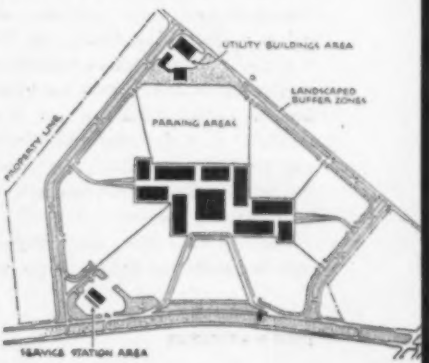
7. And all this must be beautiful, inviting, comfortable—have a "shopping atmosphere."

●

Very often the land available is not sufficient to meet the ground requirement for a single-level center. In such a case, it will be necessary to double-use parts or all of the site, with double-deck parking, or two-level merchandising, or perhaps both. A site which requires intensive use of the land can lead to very interesting solutions, once the obstacles of double-level planning—vertical circulation and parking accessibility at each level—are solved. Two centers now on the boards required a very high coverage of the land —too high to allow single-level planning. Double-deck parking was considered and discarded in favor of two-level merchandising. Both sites were nearly level but, by grading, split-level parking was introduced, which made parking directly available to each sales level. Vertical circulation is by ramps, stairs, and escalators.

In other cases, the site is more than ample for the shopping center proper. This is true of the J. L. Hudson Northland Center where it was possible to provide adequate buffers, place land in reserve for future expansion of buildings and parking, and devote other land to high income subsidiary uses, both commercial and residential,—a city in itself with all land planned for its highest use, providing the most pleasant and efficient living, shopping, and business surroundings possible.

Northland Center, Detroit (above), *is planned by Victor Gruen's firm with buffer strips which can shrink as the parking areas expand* (below).



Open-air mart in Mexico City . . . elementary merchandising.

merchandising

After the economic analysis has been made and the land-usage plan developed, the center is "merchandised" and the merchandising plan is made. Its purpose is to create, by proper store location, the highest *over-all* sales per square foot. If merchandising studies indicate that it is advisable, the land-usage plan must be changed—but changed in such a way that it does not lose any of its attributes.

Determination of the size, number, and arrangement of tenants in a shopping center is not an exact science. It takes a certain amount of "playing by ear." Experience of the authors indicates, however, that the key is set by a number of factors, primarily by existing business districts on conventional street patterns. This is because existing business districts are the result of competition. They were born in competition, have lived in competition, and still exist there. Consequently, the fact that they have operated successfully in their present relative locations has, we believe, a decided significance and, it is reasonable to conclude, the same relationship should be maintained to a certain degree when placing these tenants in an integrated shopping center.

This past experience, when tempered with the results and findings of the economic analysis, provides the basis for establishing the size, number, and type of tenants for a shopping center.

the traffic generators

Assuming that the size and number of stores have been determined previously, the arrangement of those stores in a plan becomes first an architectural problem. The architectural design must lend itself to the arrangement of stores in such a manner as to locate "traffic generators"—which are the major department stores, food stores, and other major tenants—in such a manner as to direct the flow of traffic by the doorways of smaller tenants. The importance of creating traffic for the smaller tenants is pointed up when a study is made of the rents per square foot which can be realized from small tenants, in comparison with the larger tenants.

For instance, we know of no case in recent years where a major department store has executed a shopping-center lease to pay a percentage in excess of 4% of its sales. When that percentage rent is applied to what is considered a good merchandising job, namely sales of $60 to $70 per square foot of gross building area, it indicates that the maximum department store rent will be approximately $2.50 per square foot. For a good market in a good location, a good lease with a tenant of strong credit may call for a rent of 2% of sales, and a top operator will reach sales of from $100 to $150 per square foot of gross area, which indicates a maximum rent of somewhere between $2 and $3 per square foot.

the small shops are of equal importance

Small shops, besides paying excellent rents, add interest for the customer of the shopping center and actually contribute to higher sales by the major tenants. It is not uncommon for shops for candy, gifts, hosiery, millinery, etc., whose area requirements in most cases do not exceed 1000 to 1500 square feet per store, to execute 10% leases and, even if their sales reach $30 per square foot, they would pay rent as high as that paid by the major tenants. In most cases, the sales of those stores approach $70 or $80 per square foot, which would indicate a rental return of over $7 per square foot. Between the small stores and the big stores, there is a whole range of others whose importance should not be lost due to the fact that they are not so-called "name" tenants.

If the owner expects to receive the last 15% to 20% rental return in his shopping

center, we believe he cannot overemphasize the importance of placing the small tenants in a location that will allow them to capitalize on the pedestrian traffic created by the major tenants. We believe that it is impossible for a regional center to survive without a major department-store tenant and other major tenants, such as large variety stores, food stores, etc. It is the advertising effort of these large tenants which generates the customer acceptance of the center and actually establishes the limits of the trade area.

Importance of balance

It is, therefore, our conclusion that a center of all "big names" may be successful, but will fall short of obtaining the last 15% or 20% of revenue possible from a shopping-center development. Likewise, a center consisting of all small stores with high-rent-paying capacity might fail, due to the lack of sufficient traffic which would be provided by the larger tenants. Consequently, a proper balance is necessary between traffic generators and the high-rent-paying smaller tenants. An architectural plan capable of placing the small tenants in the path of the pedestrian traffic generated by the larger tenants is of utmost importance.

It might be taken from the above argument that the ideal center would be one having just enough "name" traffic generators to bring customers to the center, with the rest of the project devoted to high-rent-paying small tenants. This is very far from the truth, since there is one more condition which must be fulfiled and that is completeness. In addition to traffic generators and high rent producers, there must be an adequate selection of tenants who do not, themselves, generate traffic or pay high rent but who do provide the necessary facilities to insure a complete selection of merchandise and make the center a true "one-stop" shopping center. In this category, we would include furniture stores, hardware and applianee stores, and stores for miscellaneous services.

traffic and parking

The traffic-and-parking plan must define a smooth flow of traffic into and out of the site. It must balance parking demand against parking facilities. It must answer the requirements of land usage and merchandising. To do all these things, it must be based on a thorough analysis of the particular traffic and parking situation.

Probably, there is no more controversial or publicized aspect of shopping-center planning than the matter of parking. Just as important, but generally overlooked, is shopping-center *traffic*. Together, these two functions pose the twin problems: how many parking spaces will be required for a given shopping center? and what road facilities will be required to handle the flow of traffic to and from these spaces?

The answers to these questions are governed by a set of factors which varies for every shopping center and most of these factors are indeterminate in the planning stage. The various ratios 1:1, 2:1, 3:1 are far too approximate to apply to a project the size of a regional shopping center and, even if they were exact, they apply only to parking, leaving the traffic problem unsolved.

Several years ago, the Smith and Gruen offices decided to undertake a series of observations of existing regional centers, hoping that a pattern of operations might exist between centers on which the operations of a proposed center might be predicted. Three such surveys were conducted of different sized centers in different locations. The number of cars in, out, and parked was tabulated each half-hour for a full shopping week. Also observed were passengers per car, truck traffic, and boundary road conditions.

The statistics were reduced to a common denominator—the number of cars performing a given operation per 1000 sq. ft. of rentable area—and curves were then constructed from the three sets of figures. These curves proved that, although shopping centers do vary in their parking and traffic requirements, there is an amazing similarity as to volumes, peak hours, and the general pattern of operations. From the three curves, it was possible to construct a mean curve, representing the operations of a hypothetical shopping center, which could be used as a norm with which to compare proposed shopping centers.

Eventually, a technique was evolved for estimating not only the parking needs, but traffic requirements as well. Whereas this technique by no means results in a down-to-the-last-car prediction, based as it is on actual operations, the chance for error is reduced to the minimum. Mainly, such possibility of error as does exist is limited to the estimate of expected trade, and this estimate is probably the most carefully considered figure in the entire shopping-center analysis.

In order to project the figures obtained by observation to the operations of an unbuilt shopping center, a comparison must first be made. Will the proposed center do more or less business than those observed? Are the trade-area economic levels and car registrations similar? Are they comparable in size? Is public transportation of the same or similar quality? Once these questions are answered, the observed operations are adjusted up or down and applied to the proposed center. For example, assume that a regional shopping center of 800,000 sq. ft. of rental area is being planned for a medium income area, in a city with a high ratio of cars per capita. It is compared with an observed center of 650,000 sq. ft., located in a similar area, and doing a moderate volume of business.

The economic analysis indicates the proposed center has an excellent net potential—nearly 20% greater than that of the operating center. Other considerations being equal or nearly so, we judge that the proposed center will enjoy a 20%

	Store Hours	Cars per 1000 sq. ft. rental area
Monday	12:30 - 9:30	17.27
Tuesday	9:30 - 5:30	9.86
Wednesday	9:30 - 5:30	10.27
Thursday	9:30 - 5:30	11.46
Friday	12:30 - 9:30	19.04
Saturday	9:30 - 5:30	16.06

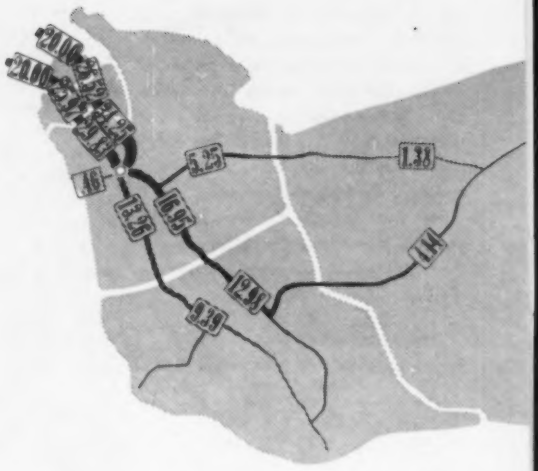
Table 1. Observed traffic volume in existing center.

Table 2. Estimated volume for 800,000 sq. ft. center with assumed 20% greater business than existing one.

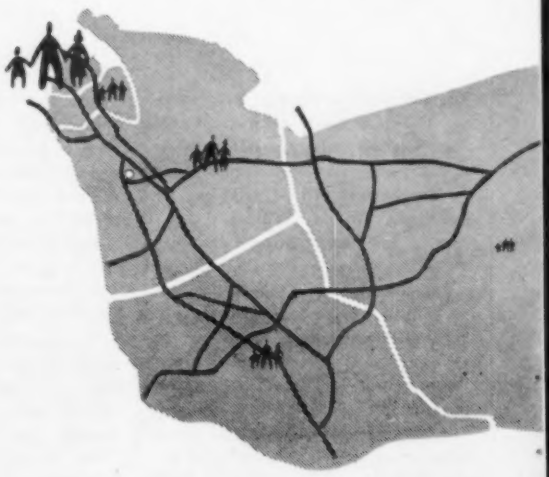
	Store Hours	Cars
Monday	12:30 - 9:30	16,580
Tuesday	9:30 - 5:30	9460
Wednesday	9:30 - 5:30	9850
Thursday	9:30 - 5:30	11,000
Friday	12:30 - 9:30	18,280
Saturday	9:30 - 5:30	15,420

Time	Cars in	Cars out	Cars parked
Before opening	1164	...	1164
Noon - 12:30	842	384	1622
12:30 - 1	765	476	1911
1 - 1:30	723	586	2048
1:30 - 2	769	655	2162
2 - 2:30	750	695	2217
2:30 - 3	714	710	2221
3 - 3:30	769	805	2185
3:30 - 4	681	750	2116
4 - 4:30	677	856	1937
4:30 - 5	699	985	1651
5 - 5:30	769	860	1560
5:30 - 6	878	860	1578
6 - 6:30	741	686	1633
6:30 - 7	1071	622	2082
7 - 7:30	1500	641	2941
7:30 - 8	1912	966	3887
8 - 8:30	1354	1199	4042
8:30 - 9	809	1647	3204
9 - 9:30	439	1949	1694
9:30 - 10	274	1373	595
After closing		595	
TOTAL	18,300	18,300	

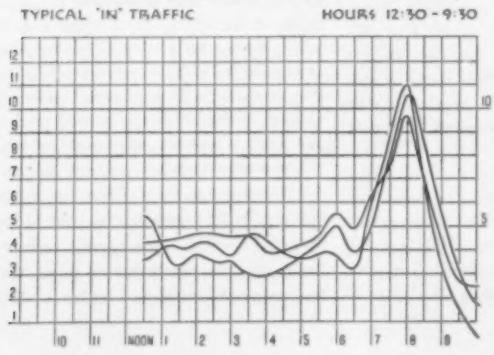
Table 3. Hourly traffic estimate for a Friday in proposed center, based on collated observations.

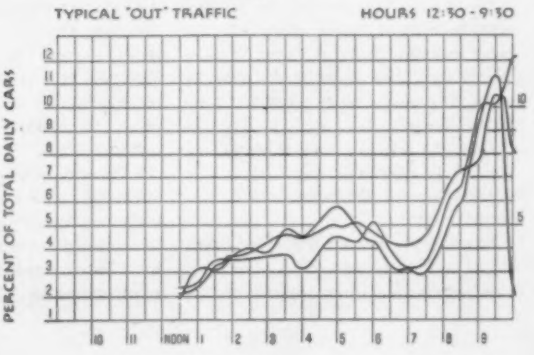


Car count of existing traffic on roads leading to shopping center, showing relation to size of adjacent population centers.



Traffic observations at three shopping centers show close similarity (charts below).





greater volume of business per square foot than the existing one whose operations we know. Armed with this estimated overage, it is next possible to consider shopping traffic from its point of origin to its destination, and back again—incoming traffic, parking, and outgoing traffic.

The existing center was observed to handle the weekly volume (*Table 1*).

The estimated 20% increase for the proposed 800,000 sq. ft. center results in the weekly volume (*Table 2*).

Once the daily over-all volumes have been estimated, in order to determine the traffic distribution on the major access roads and the time and intensity of the peak periods, the following analysis is made:

1. *Origin of Trade.* The number and location of expected customers and the definition of the trade area, can ordinarily be obtained from the economic analysis. Any factors which tend to reduce auto travel—such as walk-in trade and trade via public transit systems—should be investigated and the proper deductions made from the net expected customers to arrive at the *net auto-borne population.* It somewhat simplifies the procedure if the various groupings of net auto-borne population are converted to percentages of the total.

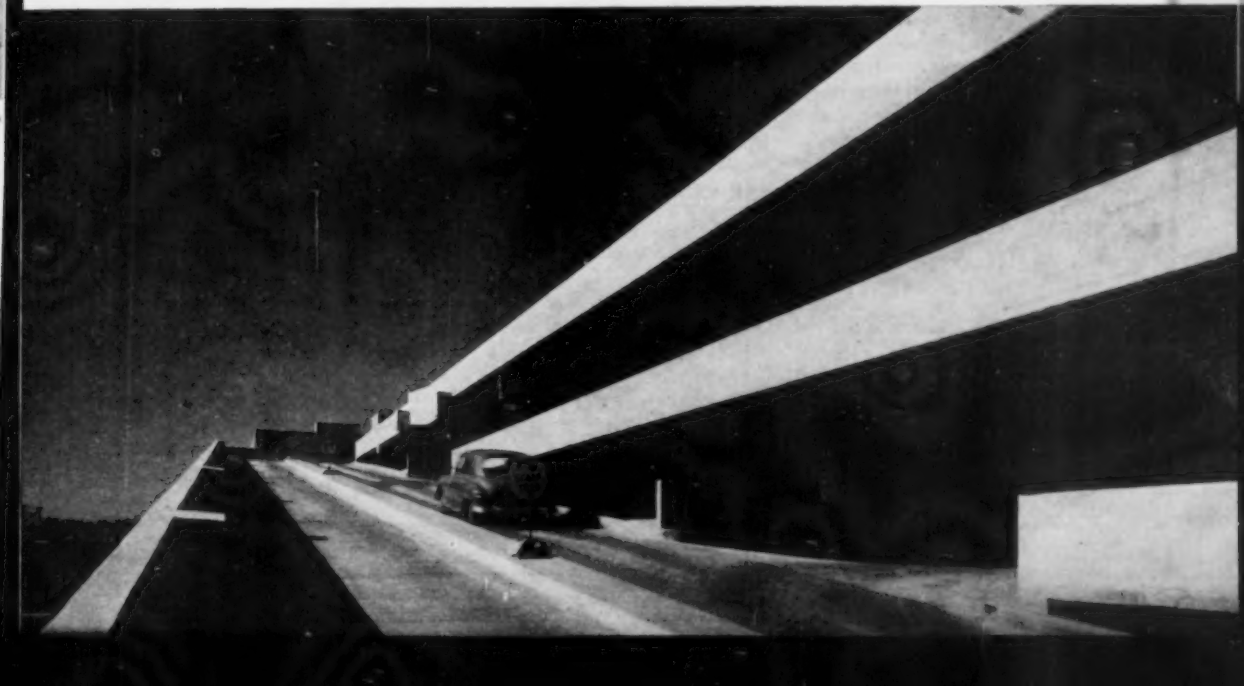
2. *Traffic Volumes.* The net auto-borne customers can now be traced to the center over the most logical trade routes. The figures used can be either percentages of the total net trade, or these percentages can be converted to actual cars per day by applying them to the expected total cars for any given day. Traffic volumes are computed by distributing the population among the various roads and then, starting at the outer limits of the trade area, totaling them cumulatively until the site is reached.

Since there is a wide hour-to-hour variation in traffic volumes, it is next necessary to break down the daily total into hourly or half-hourly subtotals. The Smith and Gruen offices found it possible to plot the number of cars "in," cars "parked," and cars "out" from curves based on the operations of existing centers which show a definite similarity in these operations. From these charts, a "mean" curve can be constructed and then, working from the total traffic expected each day, a tabulation of the operation can be computed. Considering Friday, when approximately 18,300 cars are anticipated at the proposed center, the day's operation would be as shown (*Table 3*).

This tabulation forms the basis for establishing the required number of entrances (maximum "in" load=3412 cars per hour), exits (maximum "out" load=3596 cars per hour), and parking stalls (maximum "parked"=4042 cars per hour). To these minimum requirements should be added reserves for pre-holiday selling, sales days, and unforeseen happenings which might throw an additional load on the shopping traffic and parking.

Once the shopping traffic has been established, it is possible to study the load which will be imposed on the critical boundary or access streets and intersections. Here shopping traffic is added to non-shopping or through traffic to produce a combined load which must be handled smoothly if the shopping center is to operate efficiently. A car count is taken of the existing traffic on all boundary roads, tabulating volumes for each half-hour of the shopping week. This is projected forward to the date the proposed center is expected to open, and adjusted for population increase, new highway facilities, etc. The shopping traffic is then broken into half-hour totals for each day and added to the non-shopping traffic, producing a combined load which the roads must be designed to handle. The boundary roads will carry the most critical loads and the locations of exits and entrances to the shopping center can have a great effect on these loads. The entrances and exits must be located as strategically as possible in order to balance the traffic flow about the center.

Ramp leading to multi-level parking space where customers park their own cars. Heckt Company's Parkington shopping center, Arlington, Virginia. Abbott, Merkt & Company, engineers; Kahn & Jacobs, consulting architects.



Visualization of completed site studies for Montclair Center in Houston, Texas. The street which bisects property is routed overhead, serving roof-deck parking areas. Victor Gruen and Irving Klein, associated architects, made full use of irregular site.

the site plan

This plan is the culmination of land-usage studies, merchandising plans, and parking and traffic analyses. It is here that the refinements are made. The basic requirements have been determined and fulfilled. But, faced with the complexity of area requirements, rents, car counts, intersection studies, truck traffic, drainage conditions, tenant demands, etc., architecture though not forgotten, is sometimes temporarily moved to the background.

The architect designing a regional shopping center faces one of the great opportunities of his day. Projects of this scale have been rare since the Renaissance and what is lacking in experience must be made up for by skill in mastering the spatial relationships, the landscaping, the walks, the vistas, the atmosphere to produce a beautiful and harmonious whole.

shopping-center type plans

Basically, there are five types of shopping-center plans. These types are often used in combination, and each has many variations.

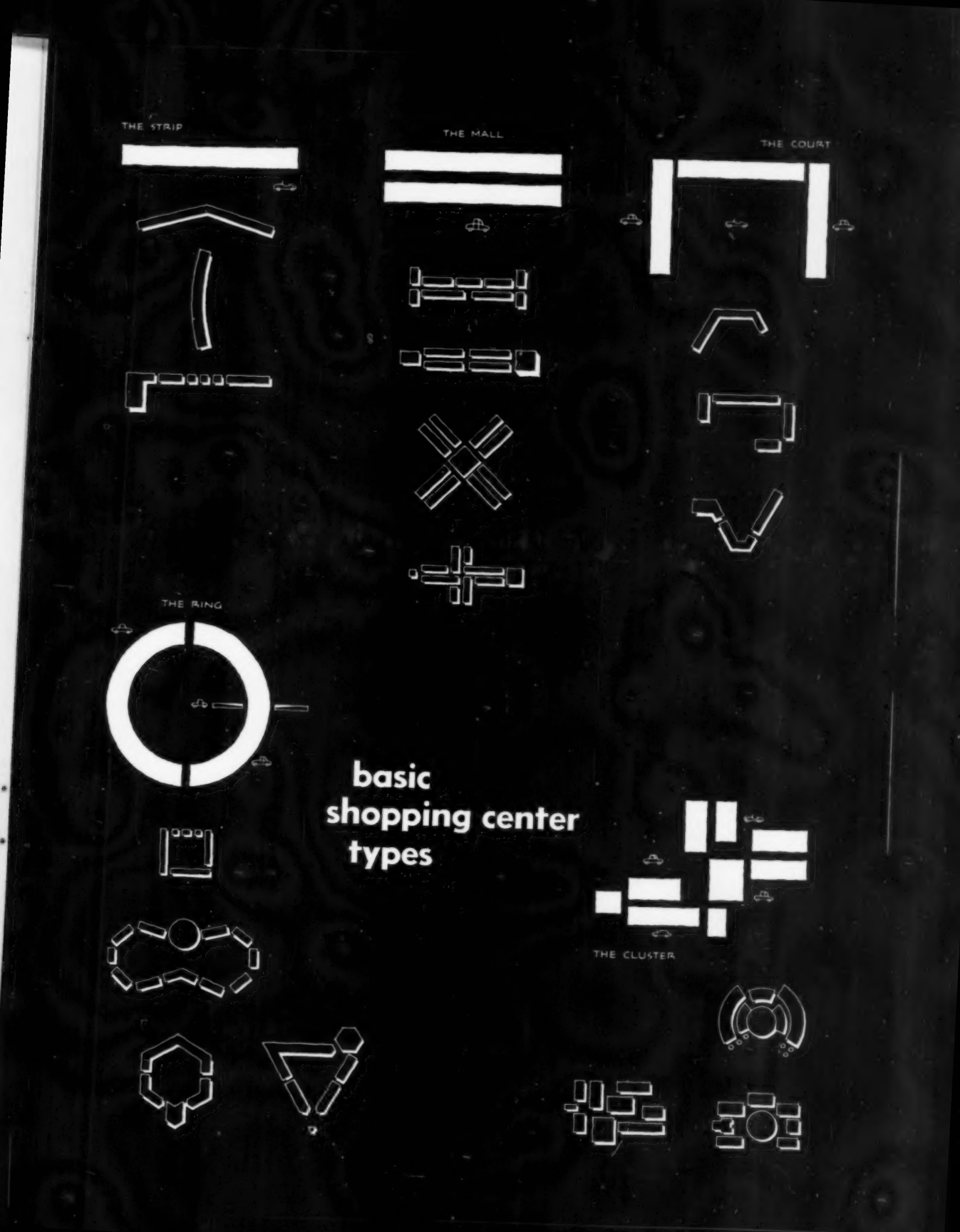
1. *The Strip.* Most store groupings stem from this "line of stores." It is efficient and economical to place stores side by side with common end walls, a united front, and service concentrated in the rear. The strip can be adapted to neighborhood and even, at times, to district centers. But, as the size of the center increases, the advantages of the strip are outweighed by the disadvantages. It becomes too elongated, difficult to merchandise, foot traffic is diluted, and walking distances are increased.

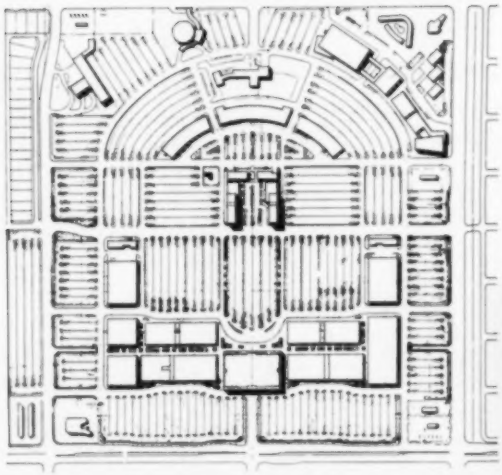
2. *The Court.* By shaping the strip into a court or series of courts, its basic advantages are retained while new ones are added—visual distances are decreased, walking distances can be lessened, and foot traffic improved since more key store locations are created. The court is adaptable to neighborhood and district centers and, by double-use of the site, to regional centers.

3. *The Ring.* A closed court. This basic type shapes the strip into a ring and in so doing creates equal trade locations and, consequently, increases foot traffic. Walking distances are reduced since almost all retraced steps are saved. If the court in addition to the periphery is used for parking, the stores enjoy excellent contact with the parking areas. This type can be used for neighborhood and district centers, although, in this case, the inner court will not be large enough to use efficiently for parking. A regional center, however, develops sufficient diameter to devote the inner court to parking.

4. *The Mall.* The mall is essentially two strips, face to face. This simple shift in grouping has tremendous advantages which increase as the size of the center is increased. First, it is possible to double the building area with no increase in walking distances. Second, the volume of foot traffic is greatly increased. Third, more strong store locations are created. And fourth, if the center is large enough to warrant the expense of underground delivery, a single service road below the mall will serve the stores on both sides. Inherent in the mall scheme is the possibility of covering and closing the mall—as being planned for Woodridge, in Houston, Texas—to provide air-conditioned sidewalks, complete weather protection. This type is adaptable to any size center, from the neighborhood arcade to the impressive regional mall.

5. *The Cluster.* The cluster plan, which is a carefully plotted informal grouping of stores, can range in size from the small "farmers' market" with a dining court for its core, to the huge regional center with a major department store for its nucleus. In its small form, the cluster is akin to the early bazaars and market places. In a regional size, the cluster can combine all four of the basic types—strip, court, ring, and mall—to produce a tightly integrated store grouping with a maximum interplay between stores. Extreme care must be taken with this plan type to maintain close contact between the parking and shopping areas, and to avoid "lost" store locations. Although very difficult to plan, the cluster scheme has great possibilities.

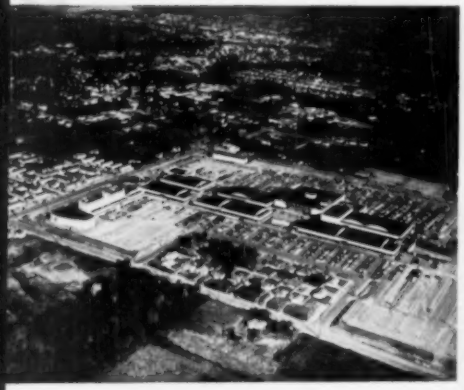

THE STRIP
THE MALL
THE COURT
THE RING
basic
shopping center
types
THE CLUSTER



Lakewood Center, Los Angeles, California; Albert C. Martin & Associates, architects and engineers. The center, now under construction, will grow to the extent indicated by the site plan including many community facilities.

Completed store for May Company is shown (above) with aerial view looking east to new sub-divisions this center will serve. Rows and rows of houses; rows and rows of cars—each creating new problems (left).

Northgate Shopping Center, Seattle, Washington; John Graham & Company, architects and engineers. A mall development with the large department store, Bon Marche (right), which connects the two arms, entered either from the parking area or from the mall.



projects

North Shore Mart, Great Neck, Long Island; Lathrop Douglass, architect. Seven-acre shopping center with John Wanamaker store as main unit. Single strip curved around parking area, on corner site.

Swilton Shopping Center, Cincinnati, Ohio; Ketcham, Gina & Sharp, architects.

Park West Center, Mansfield, Ohio; Raymond Loewy Corp., designers. Twenty-acre center for rapidly growing area.

Bellevue Shopping Center, Bellevue, Washington; Bliss Moore, Jr. & Associates, architects. Growing since it was started in 1946, this has lost the raw look of projects started more recently. Lessons might be drawn from saving of huge tree, to which plan of restaurant was adapted. Result: successful, well known eating place which has been loan to other tenants.

Shoppers' World, Framingham, Massachusetts; Ketcham, Gina & Sharp, architects; Kenneth C. Welch, economic survey. Among contemporary shopping centers, this is an example of the mall-type development. In contrast to others, such as Northgate in Seattle, the principal department store is at one end of the mall, with another major store planned ultimately to close the opposite end of the mall. The planning and merchandising theory here is that for such a great development there must be two principal "pullers." Site has a rather narrow frontage; parking area surrounds the stores.

Picture above shows a busy day at Shoppers' World in rather mild weather, with the two-story pedestrian arcades open to the landscaped central mall, which is eight feet below the level of the parking space. The same arcades are shown (left) glazed against winter weather. Note the discipline in the use of signs—here the management controls size and placement, both on the outside of the arcades and on the walkways themselves (in comparison to the greater freedom suggested later on in this issue).

Owner-Architect Contracts

The standard forms of agreement as issued by the A. I. A. provide basically for two types of agreement: Forms a-102 and b-102, in which a percentage of the cost of the work forms the basis of payments to the architect; and Form 103, which is based on the fee-plus-cost system.

Experience seems to indicate that the first-mentioned type of agreement, the percentage type, is not at all practical for shopping-center contracts. The reasons are many: the long pre-preliminary period and the number of people involved as consultants and tenants are among them. The fee-plus-cost system would seem, on the basis of some experience, to be much more adaptable to shopping-center design. However, even this agreement should be used only with considerable changes.

First, a special arrangement should be made for the period of exploratory work which precedes the service referred to in standard architectural projects as preliminary work. As we have attempted to explain step by step in this issue, many studies have to be made before, what are commonly referred to as, architectural preliminaries can be started—and the architect should be involved in all these pre-preliminary matters. At various stages, he will be called on to present studies for leasing and financing purposes. This exploratory period may last anywhere from a few months to a few years. Only when the basic land-usage plan has been agreed upon by owner, economist, and financing institution and when the main tenant or tenants have in principle agreed on the terms of a lease, can the architect start to undertake the work which is usually referred to as "preliminary."

It seems to be obvious that, for the entire exploratory period, only a highly flexible arrangement would be practical. Victor Gruen's office uses, for this period, an arrangement by which it is reimbursed for actual drafting cost, for overhead in the form of a percentage of these drafting costs, and for all other out-of-pocket expenses; it uses a fee which is expressed as a function of the drafting costs. In such a preliminary agreement, the typical Gruen contract provides that the project can be canceled by either side on proper notice (60 or 90 days), and that neither side shall have any obligation toward the other if the project should not be executed at all, or if the owner does not desire to continue to employ the services of the architect—with the proviso that, in that case, he shall not use the architect's plans, ideas, or any part thereof.

Once the exploratory work is concluded, the A. I. A. Form 103 could well be used. However, the Victor Gruen offices find the following changes and additions practical:

1. At this time, the size and nature of the project can be documented by photostats of the site planning and basic program which has been agreed upon in the exploratory stage.

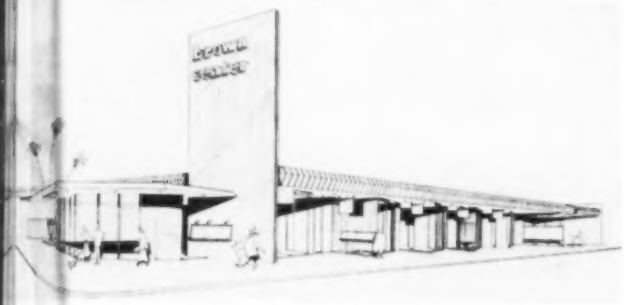
2. Clear provisions concerning changes of the fee in case changes in the program should be made. (They could, for example, refer to changes in the square footage of building area, or to extra payment for changes which make completed drawings obsolete.)

3. Paragraph 3B of the agreement—which deals with sums paid to structural, mechanical, electrical, sanitary, or other engineers—should be enlarged in scope to include consultants for lighting, traffic, landscaping, graphic work, land planning, etc.

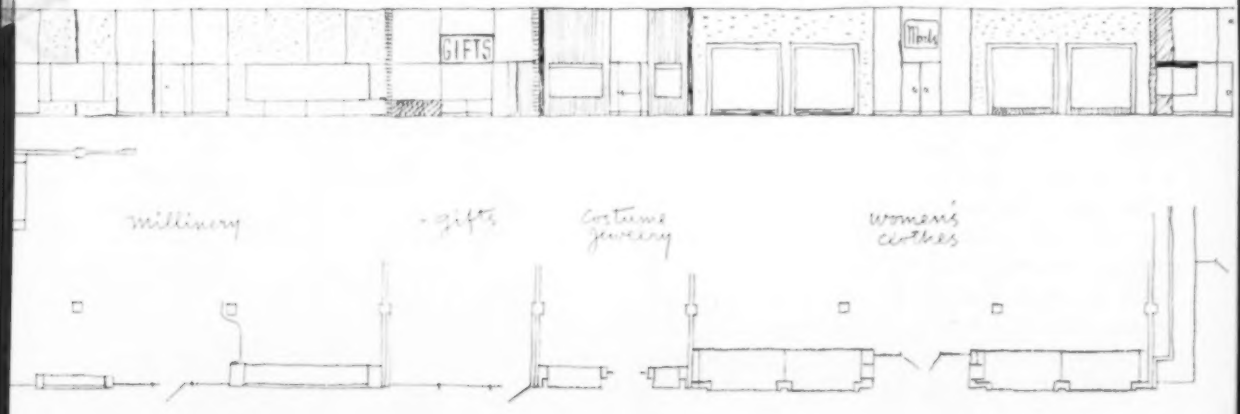
Because of the complex nature of shopping-center planning, the architectural cost is considerably higher than that for projects of similar size in the housing or office-building field. The repetitive factors which occur in the other fields are not as prominent in shopping-center planning, and many design factors which do not occur in other fields are present in shopping-center design. If it is necessary to give an estimate of architectural cost (which should never be guaranteed) or to submit a guaranteed minimum cost (which is not desirable), these facts should be borne in mind. Architectural costs, even for very large shopping center projects, should probably be estimated to run between 5% and 7% of the total construction cost.

If signs and lettering are considered a part of the total design problem, there can be a much better co-ordination without loss of merchandising appeal. An instance is the picture (right) of the Shopping Center for the Palo Alto Consumers Co-operative Society in California; Bolton White and Jack Hermann, architects.

What can happen when intentions are good but control is lacking is indicated by the sad case of real-estate signs, directional signs, and ads pasted on show windows of the shopping center in Tarzana, California (left). It was designed by the architects, Palmer & Krisel, with the restraint which the rendering (left, below) indicates.



Sketches of storefront and sign treatments, from the office of Victor Gruen, indicates what can be done within the terms of a reasonable lease arrangement such as the one outlined in the following article.



Storefronts and Signs in Shopping Centers

Two forces, that seem to be hostile to one another, influence shopping-center design, trying to pull it in different directions. One is the desire for architectural unity; the other, the desire for full expression of the individual character of tenant stores.

A clear victory of the second tendency can be seen in the strip developments along suburban roads and highways. Here stores with different depths and various heights form a wild zigzag toward the parking area, and another zigzag toward the sky. Colors and materials of neighboring stores clash vehemently, and signs try to outdo each other in size, garishness, and light intensity. The absurdity of the competitive efforts of neighboring stores was most effectively illustrated in an old Chaplin comedy when Charlie, the store owner, caught in the middle between two "gorgeously" remodeled neighboring stores, saved his business by affixing a large sign on his shop reading "Main Entrance."

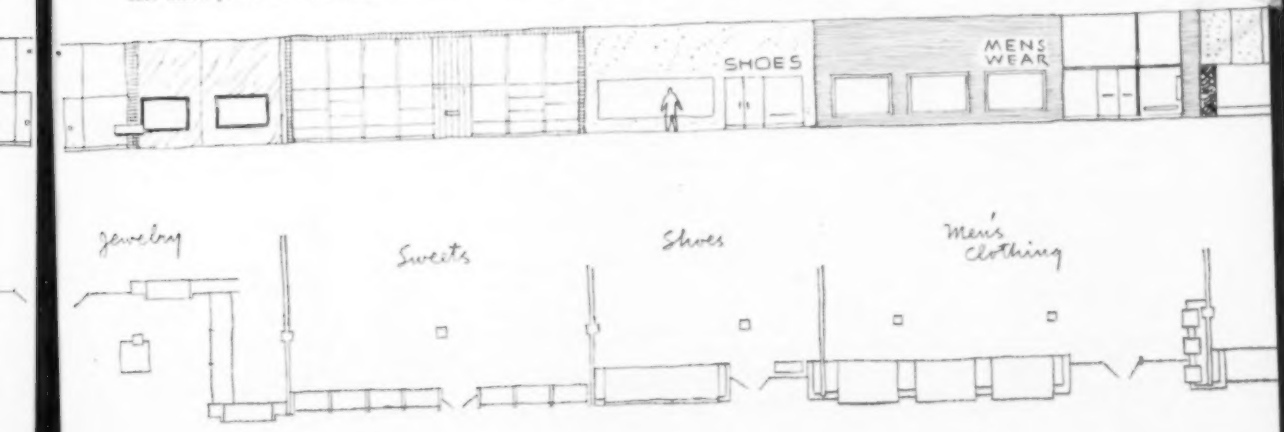
It is much less easy to find examples of absolute uniformity of storefront treatment—at least, they are hard to find in existing shopping areas. Very often, projects which provide for the strictest standardization are started with great courage, only to experience defeat after defeat during the leasing period, the final construction period and (worst of all) during the years following the opening of the center. This is not surprising, if one remembers that a shopping center is by no means an institutional enterprise, but a voluntary cooperation of individual tenants.

Shopping centers are constitutionally organized along the lines of a federal republic: the owner, or shopping-center management, represents the federal government; the tenants, the different states. Certain laws and institutions serving the overall interest will be administered by the management; others can be, and should be, left to the tenants. In most instances, the division of authority is a pretty clear one. There is usually full agreement that the store interiors shall be individually shaped by the tenant in accordance with his needs. There is mostly agreement that parking, landscaping, utilities, general upkeep, and maintenance should be taken care of by shopping-center management. But there is one area of conflict—storefronts and signs.

Architects who have worked on store design will always stress the point that each individual store needs an individual expression on the outside. Some merchandise calls for open fronts, other products for big show windows, still others for small show windows. Some stores need vestibules or so-called arcades; others, just a straight glass wall separating exterior from interior.

There is no doubt that when each store is given the exterior treatment which best expresses its individuality and its merchandising methods, it will function best and, therefore, be of the greatest value to the shopping center as a whole. Individual storefront treatment should be encouraged, but this does not have to result in a disorganized appearance if a number of measures are taken to protect architectural unity.

One of these measures is the creation of the basic architectural elements which form part of the over-all design of the center. Uniform roof lines, parapet walls, canopies, colonnades, exposed columns, and color schemes must be strong and clearly defined. The more strongly the over-all character is stressed by architec-



tural means, the more liberal can be the policy concerning individual expression in store exteriors.

For instance, the Victor Gruen organization has used the colonnade instead of a cantilevering canopy in many cases, because it seems to offer two advantages: It provides a strong rhythmic architectural element which gives character to the shopping center itself; and, it permits the establishment of the storefront line in an area where no columns occur, so that complete freedom concerning store sizes and storefront treatments is achieved.

Another measure is architectural control of tenant storefront design. This control should be anchored in the lease and should not only provide a clause requiring all plans to be approved by the owner, but should also give the tenant a clear indication of the requirements which the owner will consider desirable and on which approval or disapproval will hinge.

A similar policy should prevail concerning tenant signs. It seems to us of utmost importance to keep tenant signs restricted to the storefront areas of the individual tenants themselves. On the other hand, greatest freedom, within the bounds of good taste and sound construction, should be given for the tenant signs which are attached directly to the storefront. They should be subject to architectural control, but here too the tenant should be told in the lease, not only that the owner's permission is required, but also the considerations on which the granting or refusal of such permission will be based.

TYPICAL LEASE CLAUSES GOVERNING ARCHITECTURAL AND CONSTRUCTION STANDARDS

General Principles. In establishing architectural and construction standards, the management is guided in this matter by the belief:

That a shopping center is basically an expression of the effort of many individuals to co-operate with each other to achieve the highest degree of service for their customers and, from this, the most profitable operation for themselves.

That this co-operation will find its clearest expression in the public services provided by the shopping center, and in the exterior appearance of the individual stores.

That the individual stores contribute most to the total visual effect of the center if they, on one hand, maintain individual expression and thus add interest, variety, and color to the total project and, on the other hand, relate harmoniously to the general character of the center and to their immediate neighbors.

That an integrated shopping center is a place to which prospective shoppers come with the express purpose and intention of shopping; therefore, the large flashy signs, loud color scheme, noisy designs, deep arcades (which are necessary in downtown areas) can be forgotten.

That the shopping center itself, by virtue of its size, public features, and general advertising value, offers each tenant the opportunity to keep his storefronts and, especially, signs simple and in good taste.

The management believes that these principles are not only in the best interest of the shopping center as a whole, but will provide the greatest benefits for the individual tenant, and that the guiding motive in the development of the tenant storefront should be conformity, but not uniformity.

●

Therefore:

1. All entrance doors must be recessed in such manner that the door openings to the outside will not cross the general storefront line.

2. Arcade fronts are to be considered undesirable and unnecessary; however, if in some special cases, an arcade front shall be held necessary by the lessee, then the depth of the arcade will be limited to its width.

3. To secure a clear separation of one tenant store from the other, and to avoid possible clashing in materials and treatments, there will be a neutral strip between each store of a minimum of 12 inches in width. The center line of this neutral strip will coincide with the line defining the leased spaces.

4. To avoid areas which will not provide points of interest to pedestrian customers, blind walls more than 20 feet in length will not be permitted. The break separating blind wall areas must be of a major character, such as a glass-wall view into the store or a large-scale show window.

5. Signs should be regulated as follows:

a. All designs for signs shall be subject to approval by the owner.

b. Signs shall be of substantial, easily maintainable construction and conform with all regulations of the Building Code.

c. No sign or any part thereof shall be higher than 4 feet.

d. The location of signs is restricted to the storefront proper.

e. No electrical signs of the moving or flashing type shall be permitted.

6. No storefront or any part thereof shall project beyond the lines describing the leased premises, with the exception that signs may project beyond the general storefront line not more than 6 inches.

7. The center provides general sun and weather protection by covered colonnades sufficient to cut the sun's rays down to a 45° angle. In certain cases, additional protection will be provided by awnings, to be furnished by the owner and operated by the tenant. In such cases, the awnings will carry a standard, uniform sign panel with the name of the store located below the awnings. Individual awnings will not be permitted; however, the installation of sun skirts, or interior, plastic, sun shades, is permissible.

8. It is the desire of the management to give the tenants the greatest possible freedom in the choice of materials; however, materials must be fireproof and lend themselves to easy upkeep and maintenance, and must offer a pleasant, orderly appearance.

9. It is the desire of the management to give the tenant the greatest possible freedom in the choice of colors. However:

a. Colors must harmonize with the color scheme of the center itself and, especially, with the columns of the colonnade.

b. Colors must harmonize with the color scheme of the surrounding stores. To assist the tenant, a general color range will be developed, with a sufficiently large selection to permit a wide latitude of individual expression.

Figure 1—domed roof 222' in diameter for Jordan Marsh Store, Shoppers' World, Framingham, Massachusetts; Ketchum, Gina & Sharp, architects; Severud-Elstad-Krueger, engineers. Impressive, column-free area.

THE SHOPPING-CENTER STRUCTURE

The selection of the structural framing for a shopping center project is affected by many factors. Some of these are constant; most, however, vary greatly in relative importance from project to project. A thorough, general study of the problem will not produce a recommendation for *one* preferable system, but will help to establish certain basic relationships characteristic of any one project. Such a study will also indicate which of the most recent developments in structural design promises most for development and application to shopping-center framing.

We shall list the most important factors affecting structural framing and briefly examine their influence on the selection and development of framing schemes.

size of project

A small shopping center, especially if located far from a large city, will probably be best framed by the conventional methods prevalent in the region where the center is located. Imagination in applying such common systems as trussed rafters, open-web steel joists, or beam-and-slab concrete framing can bring entirely satisfactory results. On the other hand, a regional shopping center, located where competitive, aggressive, and experienced contracting firms are available—covering several hundred thousand square feet of floor area, and designed so that a repetition of typical elements will occur on a large scale—offers an excellent chance for an investigation of the most ad-

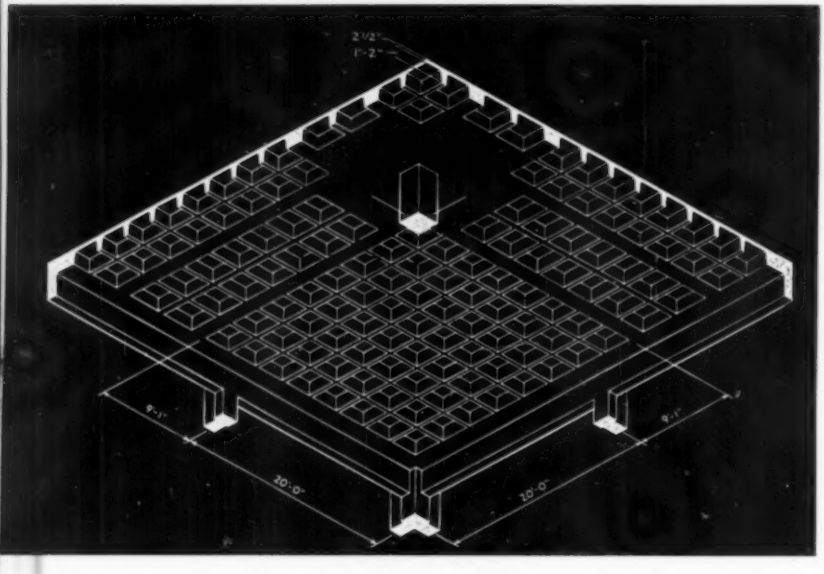


Figure 2—"waffle-type" flat slab designed by Edgardo Contini of Victor Gruen Associated Architects & Engineers, for Northland Center.

vanced design techniques and for original developments conceived to most satisfactorily answer the requirements of the largest number of effecting factors. In such a case, the investment in design and construction experimentation will be well justified by the possible economies and advantages achieved.

location of project

Location will effect structural design in several ways. Differences in building codes (particularly the reluctance of some building departments to accept new techniques of analysis or tests, or of departing from obsolete and arbitrary restrictive rules) may penalize the use of certain materials. Climatic differences evidently bring complex and controversial influences. The supply of some materials is also effected by geographic location. The economical availability of good quality lightweight aggregate for reinforced concrete is, for one example, geographically limited for the present by the high cost of transportation for a material of such bulk. Further, established habits of local contractors have to be accounted for. There are still several areas where precasting techniques are frowned upon as something very daring and experimental.

physical characteristics of site

These characteristics are likely to govern the selection of the foundation system. Where unusual soil conditions are encountered, site characteristics represent an important secondary factor effecting the selection of the framing for the superstructure.

The foregoing factors, of course, are not peculiar to shopping centers; however, they combine with the more specific ones (which follow) in effecting the final selection.

selection of column spacing

There are three primary types of buildings generally present in a large shopping center:

(1) The typical row-type building. These are one or two stories high, 100′ to 150′ in depth, and will accommodate tenant stores of different widths.

(2) The special-purpose-type building. Accommodating major department stores, these may be multistory and, in general, have a compact plan shape.

(3) The supermarket-type building—usually one story high.

All of these, from a merchandising standpoint, will benefit from complete elimination or, at least, reduction to a minimum of interior bearing supports. On the other hand, long unobstructed spans, if feasible from an engineering standpoint, unavoidably conflict (especially for floor framing) with the primary underlying factor of cost of construction. Cost has not previously been mentioned simply because, within the economic framework representing the essence of a shopping center, it effects all others.

At present, very large clear spans are economically feasible for roof framing only. Large spans, up to 200′ or 300′, can be achieved by means of trusses, arches, rigid frames, and, more dramatically, by means of domed structures of thin concrete shells or structural steel framing (*Figure 1*). On the other hand, it is very likely that changing concepts in department store planning, enabling great framing depths without loss

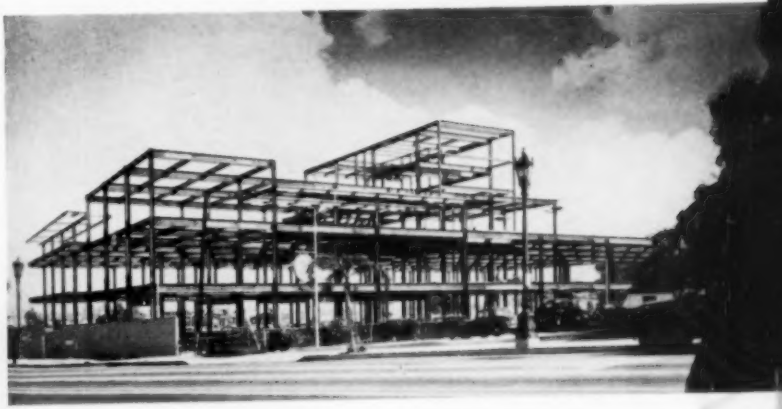


Figure 3—continuous field-welded steel frame for Robinson's new Beverly Hills store in California (right); Pereira & Luckman, architects.

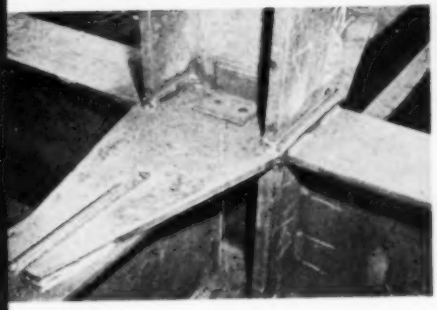


Figure 4—detail (left) of welded connection for columns and girders in field-welded steel frame of Robinson's Beverly Hills store.

of useful space, or new structural developments such as the practical application of prestressing techniques for concrete, will allow an increase of economically feasible column spacing beyond the present standards. It is unquestionable that the major challenge facing engineers concerned with shopping-center framing is the development of economical as well as structurally sound larger spans. In general, it will be found that merchandising layout for department-store-type buildings suggests an even spacing in both directions. Flat-slab concrete construction (for which extremely interesting optical methods of stress determination have recently been developed) lends itself for column spacing up to 25′ or 30′. For larger spacings (or, under present restrictions, for maximum economy of reinforcing steel) concrete-waffle-type flat slabs are very satisfactory (*Figure 2*). Were it not for the present restrictions, however, structural steel would still provide a very competitive type of framing—especially with an increased use of field welding to create continuity of both vertical and horizontal members. The recently completed Robinson's Store in Beverly Hills achieves a remarkably light steel framing on a 32′ x 32′ typical column spacing (*Figure 3*). In fact, it is likely that advanced structural steel design, exploiting continuity in a multi-directional way rather than as the obvious linear extension of the traditional two-way simple-span riveted framing, will soon find successful application and allow lighter framing for longer spans (*Figure 4*).

For the typical, row-type buildings that are sub-divided into leasable units of narrow frontage and considerable depth, it will be found preferable to minimize the number of interior supports by maintaining a longer column spacing in a transverse direction and a narrower spacing in a longitudinal direction. This solution suggests a two-way framing which, if less economical than flat-slab construction, offers another advantage—that of framing flexibility.

For the supermarket-type building, if present in the project as a separate unit, it is desirable to span the roof as a clear span, if for nothing more than to meet the demand of the supermarket operator who often objects to having his counter layout dictated by column spacing. Wood trusses, lamella framing, or glued laminated-wood arches offer reasonably inexpensive solutions for clear-span roofs.

framing flexibility

Of all the factors effecting the selection of a structural framing method, its adaptability to alterations is perhaps the most specific consideration. Maximum flexibility is required for the typical row-type building for the following reasons: (1) not all of the space may have been leased by the time the center is under construction or completed; (2) changes of tenancy will undoubtedly occur, in time. It is often desirable to provide for future vertical expansion, rather than by the addition of new wings or buildings. In this manner, the delicately balanced plan pattern of the shopping center need not be disturbed. Thus, it becomes important that the floor framing and the roof framing, if designed for possible floor use, allow for the future openings of shafts for stairs, escalators, ducts, elevators, etc., without creating ma-

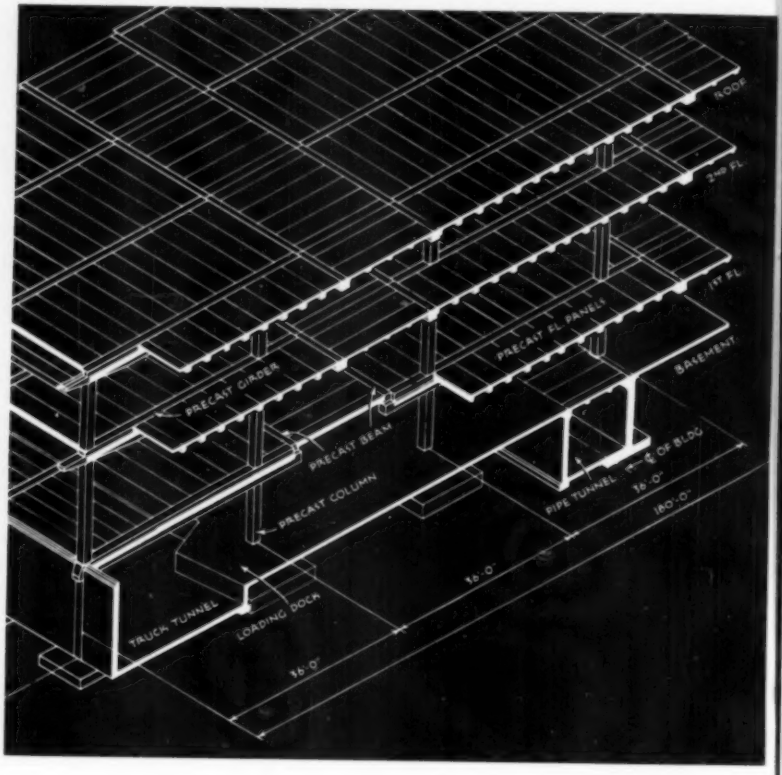


Figure 5—all-precast framing system for the J. L. Hudson Company's tenant buildings at Eastland Center, Detroit, Michigan: Victor Gruen Associated Architects & Engineers.

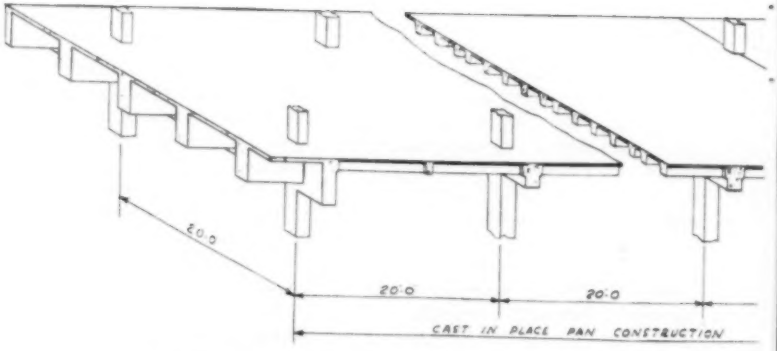


Figure 6—design for tenant buildings of project in Detroit (same owners, architects, and engineers as design above) which is a compromise between cast-in-place and precast elements, in order to conserve steel.

jor structural difficulties. Changes of this nature will not occur frequently enough, however, to warrant an excessive investment to achieve absolute flexibility. An optimum compromise is to be sought; too little is known about the operational demands of shopping centers at present to state what degree of framing flexibility approaches this optimum.

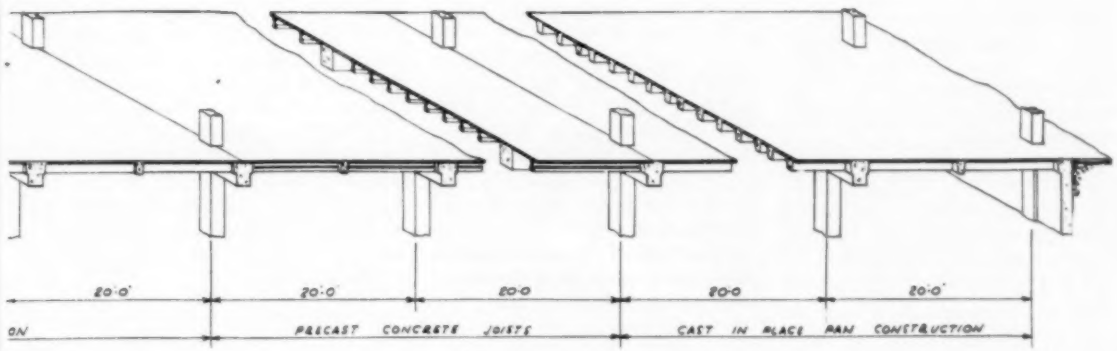
In general, the demands of flexibility factors are not too taxing on structural steel framing which, by its very nature, is eminently suitable for alterations.

But reinforced concrete does impose limitations on flexibility. Flat-slab construction does not lend itself successfully to a cutting of openings after construction. This limitation is unfortunate because one of the most interesting recent structural developments, the lift-slab, offers a low flexibility rating. Two-way framing, previously cited as advantageous in the selection of column spacing, is also desirable from the standpoint of flexibility.

For the J. L. Hudson projects, which from their inception were designed for reinforced concrete framing, due to material restrictions, an exhaustive study was conducted on the possibilities of precast construction. This technique seemed to present possible economies as well as excellent qualities of flexibility. In the first project (Eastland), the framing for the typical row-type building has been detailed for all-precast construction—entirely eliminating scaffolding and formwork. The framing consists of 18″ x 18″ precast columns, spaced 36′ on center, which support 18″ wide double-cantilever girders spaced 20′ on center (*Figure 5*). A specially designed connection detail allows for ease of erection and at the same time re-establishes a high degree of rigidity between girders and column. Spanning the girders are typical precast 4′ wide channel panels of 2½″ slab thickness. The two bays between the end of the girders' cantilevers are also framed with typical channel panels; however, they span in a transverse direction. With this system, it is possible to provide at any time for stair or other openings, in either direction, by simply removing one or more typical panels. An all-precast system, though offering the most satisfactory solution for such a large size project, does not achieve the highest economy of reinforced steel—the price is paid for flexibility at the expense of continuity!

For the project presently being detailed (Northland), a compromise solution was adopted in an effort to achieve the maximum saving in steel tonnage. The framing will consist of cast-in-place, continuous, deep-ribbed pan construction throughout, except on the two interior, center bays where most of the foreseeable future openings may be located. These are framed by means of precast concrete joists, supporting a 2½″ cast-in-place slab (*Figure 6*).

During the preliminary studies, the feasibility of using prestressed elements was investigated. It was found, however, that the high ratio of live to dead load for floor construction penalized the design of continuous elements. It was also felt that the absolute lack of flexibility of a framing system employing prestressed elements would prevent its adoption. Even if additional supports were added to such a framing system, it would be impossible to cut through a prestressed girder. It is possible, however (especially for roof framing where flexibility is not demanded), that prestressing large-size, precast units and applying the strands to the full length of the building, to minimize the cost of anchoring devices and stressing operations, may lend itself to very significant developments in the search for economical long-span framing.



fire rating factors

For department store buildings where large, undivided floor areas are demanded, Class I construction will be required for all but the smallest projects. Either reinforced concrete or fireproofed structural steel can be used. Developments in lightweight fireproofing and in lightweight aggregates for concrete topping are in favor of structural steel framing. On the other hand, the need for flexibility on store ceilings—where lighting fixtures, air-conditioning outlets, and other inserts may need relocations and additions—makes it almost mandatory to divorce the fireproofing ceiling from the finished ceiling. It may, therefore, often be more economical to adopt a basic reinforced concrete structure with finished ceiling suspended directly.

For the typical row buildings, where the total floor area can be divided into smaller units by using firewalls or separations between tenants, the selection of framing systems becomes more complex. This is because differences in fire ratings and consequent insurance costs have to be projected against differences in initial construction costs. Furthermore, the introduction of sprinklers—a reasonable enough investment—will considerably reduce the insurance cost of systems with otherwise high rates. Thus it becomes impossible to give any rule of thumb. In ease case an exhaustive comparative analysis will have to be made to determine the most economical solution. It is possible that, under certain circumstances, wood framing—in the form of arches, trusses, glued-plywood-box girders for roofs used in combination with structural steel or concrete girders for floors—may well prove to offer an entirely satisfactory solution.

owner's or tenant's specific requirements

These, of course, are highly unpredictable. It has been mentioned that some supermarket tenants will not consider anything but a clear-span roof. The clear-span domed roof over the main department store at the Framingham center has also been cited. It is unquestionably a desirable luxury to have an uncluttered area of such size within which to develop the merchandising layout. Yet, other major stores have been successfully planned on the basis of conventional open-column spacing. The conclusion: that the asset of clear span is evaluated with different factors by different tenants.

●

After having thus surveyed the influence of general factors on the selection of a structural system, a brief mention can be made of some specific framing problems that are characteristic of shopping center projects. It is accepted as almost mandatory that a covered pedestrian sidewalk be provided at the periphery of the store buildings. It is also very desirable to eliminate all columns from the storefront line of typical row-type buildings in order to allow for maximum flexibility in the subdivision of tenants' space and in the design of storefronts. This problem can be solved either by recessing the columns a reasonable distance inside of the store space and cantilevering the horizontal framing, or by providing colonnade columns at the outer edge of the sidewalk. Aside from architectural considerations that may influence the choice, it can be noted that the first solution, involving cantilevers of considerable span, is more appropriate where the typical interior transverse column spacing is also very wide. The second solution, on the other hand, lends itself satisfactorily to any selected column spacing.

If the shopping-center plan is developed around a covered mall, there arises the problem of how to roof (elegantly) the public promenade. The use of long-span, precast elements — possibly prestressed — having integral—glass inserts, so that natural light will not be excluded, may lead to interesting solutions.

If truck tunnels for underground service delivery are a part of the project, special framing problems will unavoidably occur. It should be noted that often a large portion of the structure's total cost is represented by special conditions of this sort. As a thorough analysis of the typical framing system is necessary to the selection of the most satisfactory and economical structure, so ingenuity and sustained effort, applied to the design and detailing of secondary elements, is needed to avoid the danger that some features of the project, otherwise very desirable, may become excessive economic burdens.

conclusions

In view of the fact that so many of the concepts are still at a fluid and formative stage, the creative collaboration of architect and engineer is vital in the basic design of shopping centers. Inventiveness and daring are as much bound by considerations of economic necessity as spurred by the magnitude and the extraordinary potentials of the problem. The shopping center offers again, to modern man, the values of informal order, well-scaled environment, and relaxed activity that were characteristic of the old-time plaza or the country market—lost in the fragmentary, unplanned, gau ly development of our time's downtowns.

These same values are in the process of being reinterpreted for modern man in terms of today's economy, up-to-date technology, and contemporary living patterns. Moving as we are in this direction, we have just traveled the first steps. Tomorrow's "plaza" may well be envisioned as one great, cheerful, informal, air-conditioned space, sheltered by a light, luminous, single-span roof. Within this one space—well organized and interrelated — merchandise will be displayed and "shopping" will become again a most enjoyable exciting, and civilized experience! To make such a vision into a physical and economic reality, the combined, interplaying imagination and ingenuity of architects and engineers face a challenging task.

SHOPPING-CENTER MATERIALS

The special problems introduced in the selection of materials for a shopping center are related principally to those portions of the building directly affected by the tenant occupancy, which would be subject to alteration with a change of tenant. Insofar as the criteria for selecting exterior materials are concerned — unaffected by the consideration of flexibility — they are not significantly different from many other building types.

The familiar problems exist—some of them becoming more important because of the special use of the buildings—and are solved by the same analysis that the architect customarily makes of existing conditions for any building. Cost, appearance, availability, size of project, adaptability for use with various structural systems, durability, speed of erection, climatic conditions, and maintenance factors—these considerations must be recognized in varying degrees of importance for all buildings.

In shopping centers the maintenance problem, particularly of those materials that are exposed to contact with the public, is amplified because of the intensity of traffic developed for many hours every day. The problem, then, is to select paving and exterior wall and column materials which will require over the years a minimum of maintenance under rigorous use, while providing an agreeable, pleasant atmosphere contributing to the enjoyment of the shopper. Color and texture should be used freely but not garishly and materials which offer a wide range of color and texture possibilities should be sought.

As the selection of materials for a shopping center presents possibilities which are almost unlimited, we shall make this a case study of a specific center—the J. L. Hudson Company's Northland, in Detroit —for which materials have been selected after considering all of the factors previously mentioned.

Precast architectural-concrete facing panels have been specified for the large blank wall areas of the major department store, as well as for the fascia on the covered walkway canopies, decorative panels in storefronts, and panels in the pavement of courts and malls. This precast architectural-concrete material was found particularly adaptable for the exterior wall panels of the department store. A sandwich panel 6″ thick, consisting of two 2″ layers of concrete enclosing a 2″ layer of cellular glass is being used. Any desired color or texture is possible for the exterior and the interior side will be finished smooth, ready for painting. The panels are 4′-6″ x 24′-0″, reducing the number of troublesome joints to a minimum.

The exterior free-standing columns supporting the canopies and covered walks will be of reinforced concrete faced with a vitreous cement-enamel finish. Here, a variation of color was required in a material easily maintained and durable. The colonnade surrounding each court or mall area is in a distinctive color, identifying that area and establishing a unifying framework for the varying treatments of the storefronts which face it. The edge of the colonnade roof will be precast panel-facing throughout the center helping to knit all the elements into an integrated composition.

Splashes of bright color will be introduced into the permanent features of the court areas by ceramic-mosaic tile walls for orientation maps and directory panels in strategic locations.

In the selection of interior materials, the concept of flexibility assumes an important role, and those permitting relatively quick and economical alterations to the tenant spaces should, when practical, be selected.

It is customary for the owner to provide the tenant with finished floor, finished ceiling, and finished walls enclosing his space, in addition to the necessary stairways, toilet facilities and access directly from his space to shipping and receiving services provided for the center, whether at basement or grade level. Within this space, the tenant then provides any additional walls, curtain walls, fixtures, and any finish materials which deviate from those furnished by the owner.

A mastic-tile finish floor is the best type for the owner to provide consistent with economy, durability, and good appearance and one which many tenants will regard as acceptable without further expenditure on their part. It offers as much flexibility as is possible in a floor finish, and is easily replaced or matched to suit the changing requirements of the tenant.

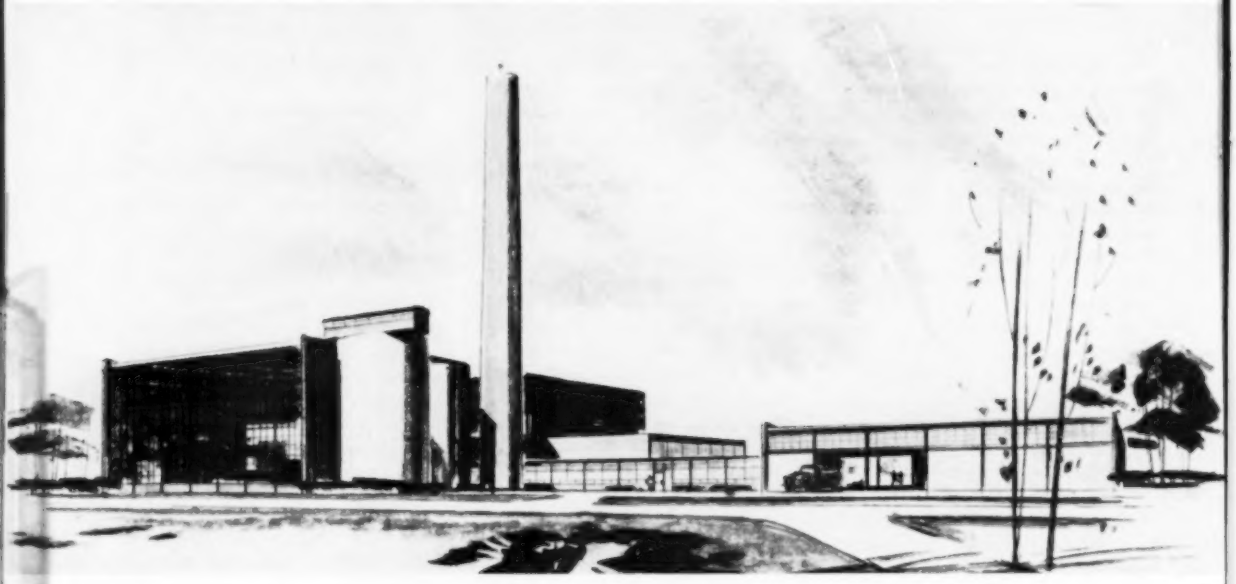
Ceilings should be of acoustical tile on a suspension system designed to provide maximum adaptability to change. Recessed light fixtures and air diffusers demand this flexibility and it should be possible to provide new openings and close old ones quickly and easily.

The importance of a dry-built ceiling installation in a shopping center cannot be stressed too strongly. Constant changes are being made in fixture layout and curtain-wall location; these changes reflect themselves in new lighting, air diffuser, and sprinkler layouts. Changes in the ceiling must be made quickly and cleanly so that the merchandising operations can proceed without the mess and bother attendant when plaster is torn down, patched, and painted.

In Northland Center the owner will provide an asphalt-tile floor through the merchandised areas and a cement finish on concrete slab in storage and utility areas. The ceilings in selling areas will be a standard acoustic tile applied with mastic to rock lath on a standard metal suspension system. Since the buildings at Northland are of reinforced concrete construction, a fire-resistant ceiling is not necessary. Walls installed by the owner, separating the leased spaces, will be of gypsum-tile construction, plastered and painted. The employees' toilet rooms for each tenant (which are part of the owner's work) will have terrazzo floors, ceramic-tile walls, suspended plaster ceilings, and flush-type metal stalls. Stairs will be standard pan type with channel stringers and abrasive finished-cement treads.

Provision of a central heating and air-conditioning plant will eliminate a multitude of scattered stacks and superstructures. The single plant can be united in design with the total. Eastland Center (below) by Victor Gruen.

SHOPPING-CENTER MECHANICAL DESIGN



The heating, ventilating, and air conditioning of a preplanned, integrated shopping center is actually one of the most challenging aspects of the project. It is challenging because the possibilities for efficiency in installation and operation, which are inherent in a co-ordinated project, can not be realized without a complete change in the traditional owner-tenant relationship and division of responsibility.

Historically, the problem of heating and air conditioning store buildings has been managed in a haphazard way largely through expediency rather than upon a logical basis. The owner generally built his building with a particular tenant in mind. It was his responsibility to provide the heating plant—the tenant provided the maintenance and operation. If a tenant wanted air conditioning, the owner sometimes, and sometimes not, provided the duct work and the enclosures or supports for the air-conditioning equipment. The compressors, the air-handling equipment, fans, evaporative condensers, etc., were supplied by the tenant. Mechanically, this wasn't too bad a situation and it was possible to have a fairly efficient installation, if the tenant and the owner got together before the building was quite complete.

Architecturally, the results have not been so happy. The typical one-story strip development store carries a superstructure almost as impressive as the building itself; ducts run all over the roof and exhaust stacks, boiler flues, air intakes, evaporative condensers, or water towers are all arranged in a totally haphazard and disorganized fashion.

So long as each store in a group tended to be the property of a separate owner (the only relationship between stores was the party wall; the problems of expansion, contraction, alteration, and change were only considered as horrors to be faced later), there was no incentive or real reason to change this not too efficient pattern.

But the preplanned regional or district shopping center has introduced a brand-new set of factors. In the shopping center, the typical tenant building is not many little buildings all strung together; it is,

rather, one large building, sometimes 400' to 450' long, uniformly designed, constructed for maximum efficiency, and capable of being divided in many ways to suit the leasing requirements of a multitude of occupancies. This element of being built all at once, and the ability to adjust to a variety of occupancy shapes and requirements, suggests the possibility that the heating and air conditioning might be conceived on the same basis—that there might be advantages in cost of installation, operation, and maintenance to be achieved by preplanning this part of the center.

Of course, it would be possible to wait until the building was rented and, as each tenant's requirements were established, to provide the heating plant and the duct work on the traditional basis — modifying the building: adding superstructures on the roof; erecting a scattered pattern of chimneys. But the only reason for doing this would be to maintain the tradition, to follow the pattern, without establishing whether the old pattern is right for the new concept of the shopping center.

Many aspects of the old system are not compatible with the aims of the planners and owners of the modern, integrated shopping center. Their desire is not only to provide convenient shopping, but shopping in the most pleasant and attractive atmosphere possible. The integrated, preplanned tenant building achieves order and uniformity plus a disciplined shape to house the individuality of each tenant as expressed in his storefronts and signs. As these buildings are set back from the street, surrounded by parking, and therefore visible at a distance, a disorganized array of roof equipment would not enhance the appearance, nor would smoke and fumes from rows of chimneys improve the shopping atmosphere.

As an alternate to this traditional, expedient approach to heating and ventilating, a preplanned building offers the opportunity to provide a central heating plant and a central air-conditioning plant of sufficient capacity to accommodate the needs of all tenants within the building. However, as the concept of the central plant departs completely from the historical owner-tenant relationship of cost and responsibility, it must be compared carefully with standard procedures and practices so that its advantages are clearly established.

This examination and comparison should be carried out from four points of view: initial cost, operating cost, flexibility, and the effect on the architectural design.

To determine the initial cost is relatively simple. Take a typical tenant building, fill it with a theoretical occupancy of stores and: (1) design a central system with the necessary distribution lines and ducts to serve the occupancy; (2) design an individual local system for each tenant in accordance with standard practice; (3) estimate the cost of each. Our experience has indicated that the central steam plant, serving a large group of tenants is, from a capital-cost point of view, more expensive than the sum of the individual plants in spite of the multiplicity of units, stacks, etc., involved in the local units. This appears to be due largely to the special character of central equipment as compared with the mass-produced individual units; and to the complex character of a central installation as compared with the simplicity of the installation of individual units.

An examination of operating costs, however, yields very different results. The maintenance, supervision, and fuel consumption of 10 to 12 individual units total approximately twice those of a central plant serving the same number of tenants. This engineering evaluation is borne out by the experiences of industrial plants, apartment house groups, etc., which have been converted from multiple to central installations.

To date, it has been impossible to confirm these operational estimates by figures from stores or chains that operate and maintain individual units, because the common practice of lumping electrical costs, service, and maintenance into the store operation, and of using either sales or management personnel for the operation and supervision of the boiler units.

As far as flexibility is concerned, there is no question that the central plant has advantages for the owner that the scattered individual tenant plants cannot hope to match. Changes in occupancy requirements, due to changes in merchandising activity or to the introduction of new units, can be met without structural change, and with only a minimum of mechanical alteration.

From an architectural point of view, the central system has many advantages: the elimination of a multitude of stacks, the localizing of the mechanical installation in one area, the opportunity of effective smoke control, and the simplification of framing by elimination of stacks. And for the tenants there is a distinct advantage in the actual saving of space — the area which would be occupied by boilers, fuel storage, and related equipment is released for merchandising or the processes necessary for merchandising.

For the landlord, the weighing of these four factors poses an interesting choice. The central plant costs more to install than the individual systems. The maintenance and operating expenses, which were formerly the burden of the tenant, must now be assumed by the management and distributed to the tenant on some equitable basis, such as the metering of the steam. The typical tenant has to be satisfied that the metered rate he is paying for the steam represents a lower heating cost than he would pay with an individual system. Yet there is difficulty in establishing what the tenant's cost would be with the individual plant because there are no clear records of this cost. The tenant must realize, however, that the diversion of man hours from the operation of the equipment to the actual management and selling operations of his store cannot be ignored, and that hidden maintenance and operating expenses are bound to be eliminated if shopping-center management assumes this responsibility.

The case for air conditioning is similar, but perhaps more complicated.

Air conditioning is not as simple a matter as the provision of steam. Tempered air can be produced in a number of ways. The central refrigeration and air-handling plant could easily supply the required volumes

of tempered air to all the tenants in a building. But it is difficult, from a central plant, to adjust to individual requirements in any fashion other than by increasing or decreasing the volume of air in each space. If booster coils are provided, the system immediately becomes special. Tempered air can be provided by supplying chilled water from a central refrigeration plant to zoned, air-handling equipment units, each of which will serve a limited area. The chilled water can be metered on a thermal basis, and the air-handling equipment will be operated by the individual tenant as he requires. Or the central plant could produce only condenser water, which would be piped to zoned compressor locations. There are others, but these are the basic central-plant variations.

Each of these three must be completely laid out with their related duct work, electrical installation, etc., in order to establish a fair basis of comparison. And in making the examination and comparison, again the four factors involved are: initial cost, operating cost, flexibility, and the effect on architectural design.

Initial cost can be determined by laying out individual systems in accordance with standard practice for a theoretical pattern of individual tenants, and three central system variations designed to serve them all.

Our surveys have indicated that, from a total cost point of view and considering a group of approximately 12 stores, the initial cost is almost a toss-up with the central plant, providing tempered air adjusted on a volume basis, having a slight edge.

Our examination of the projected operating costs of the four possible situations shows the central refrigeration and air-handling plant providing total tempered air to be by far the most efficient. One of the principal reasons for low-operating cost of the central plant is that, while it is no longer unusual for a typical one-store installation to require and use more than 20 tons of refrigeration, local ordinances and controls now generally require the continuous presence of a first-class engineer for any installation of 20 tons or more. This means that six to eight engineers would be required continuously if the regulations are adhered to, whereas only one engineer with a helper would be necessary at the central plant.

Here, again, cost figures on individual installations are hard to check: condenser water is generally thrown away and lumped into the water bill; electrical consumption is buried in the total; most operating stores ignore the regulation requiring a registered engineer, and the same manager who operates the steam plant fiddles with the air-conditioning unit.

There is also the problem of distributing costs. Steam consumption can be easily metered—air flow, only with difficulty. And to distribute the cost simply on a square footage basis can result in inequalities because of differing hours of operation.

In considering flexibility, there is no question that the central plant has great advantages. Changes in merchandising techniques often introduce increased lighting loads in an individual store and require brand-new or additional cooling equipment; with a central plant system, however, the extra cooling can be supplied without additional equipment. Changes in store occupancy also can be accomplished with little or no structural or mechanical problems.

Architecturally, the central plant is a boon. The superstructures are gone from the top of the building. There are no exposed ducts crawling over the roof. Intake and exhaust stacks can be centrally located and specially treated. And, for the tenant, the space advantage gained from the elimination of the individual boiler plant is repeated by the elimination of the space required for the compressors, condensers, fans, etc., thus increasing his usable space and giving him a larger net area available for actual merchandising.

In addition to these purely theoretical considerations of cost and flexibility, there are limiting factors that may be dictated by facilities or conditions special to the location of the project. It is possible, even probable, that the sewer capacity available to a suburban shopping center will not be sufficient to permit total discharge of the condenser water into the system. Under these circumstances, evaporative condensers or cooling towers which permit recirculation may be mandatory. Or the water supply may be limited in the general area and, for conservation reasons, the use of condenser water restricted.

Where these conditions exist, our findings have indicated that the capital cost of a central plant is considerably less than the capital costs of a series of individual plants, each requiring its own water tower or evaporative condenser; further, the accumulated space lost where each tenant must satisfy these special requirements is excessive and imposes a burden on the tenant who must rent this space. (It also decreases the opportunities of profit to the owner, because this space is totally lost to sales, and so must affect the percentage rental payments.)

The decision on the method of handling air conditioning on an integrated basis is obviously a complicated one both for the owner and the tenant. If a central plant is introduced, a large item of capital cost, normally borne by the tenant, is completely eliminated and must be expressed in a change in the rental structure or charged to the tenant on some fair and equitable basis. Either of these alternates will be a major departure from the rental pattern

experienced in other kinds of store locations and may be difficult to negotiate—particularly if the tenant may not be satisfied in his heart that the central plant means a savings.

Then, there is the question of the operating costs normally borne by the tenant which must, in a central plant, be carried by management and distributed to the tenant on the basis of his consumption. With a central cooling and air-handling plant, metering of the individual tenant's consumption by volume of air is, at present, unreliable. The distribution of costs on a square footage basis has many inequities because the volumes required by different types of occupancy will vary greatly.

The operation costs of a central, chilled-water plant can be fairly and equitably distributed where the zoned consumption of chilled water by the individual tenants can be metered on a thermal basis. But the operating and maintenance costs are slightly increased because of the necessity of tending the zoned air-handling equipment. It is also possible to meter the consumption of condenser water. But in this type of installation, the increased number of local compressor units vastly increases the operational and maintenance costs and, to a large extent, fails to realize the advantages in space saving, etc., offered by the central plant.

The Northland and Eastland Regional Shopping Centers in Detroit are being designed with central-heating and central-refrigeration plants. In making their decision, the owners agreed with the architects and engineers that the advantages in flexibility, efficiency of operation, improved appearance and shopping comfort, and the considerable space made available for merchandising, more than compensated for the increase in cost. These advantages are passed on to the tenant.

in conclusion

We—the Authors and the Editors—hope that this issue of PROGRESSIVE ARCHITECTURE has offered something helpful and useful in understanding the problems raised by that new building type, the shopping center. In conclusion, we would like to re-emphasize three points:

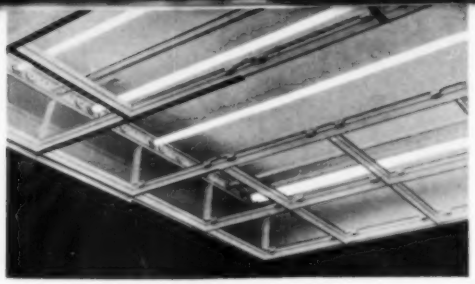
First, there has seriously been a desire to avoid definite "instructions" and dogmatic statements. If there is anywhere an appearance of such, it should be taken as a case study of one or more projects, rather than a general rule to be followed.

Second, interrelationships of factors are so important, especially in the economic aspects of shopping centers, that one can easily change another. For example, even the "trade area" cannot be defined except in relation to the physical design, and the selection of tenants.

Finally, the point made in the opening pages of the issue —that a modern shopping center can be a cultural and social center as well—may have been lost in the technical discussion through the study. This important aim should not be lost sight of: if it has not yet been attained in any completed center, it remains a possibility and a goal to work for.

pa PRODUCTS

interchangeable over-all lighting



Smithcraft's Area Illumination, a complete fluorescent system, represents an entirely flexible approach to over-all lighting. The method gives the architect, designer, and engineer fult freedom in lighting design for areas of any size or shape, with a limitless choice of pattern, shielding, and intensity.

In principle, the system consists of two sets of grids of flexible dimensions, one positioned directly above the other. The upper set of grids forms the lighting panel and contains all the electrical components. Parallel electrical housings are furnished with as many lamp holders as needed to create the desired lighting level. While the lamp spacing can vary every 3″, the manufacturer believes that 12″-, 18″-, 24″-, and 36″-spacing will meet most demands. The installed or completed lengths of these housings can be any dimension from 2′ to 2000′ or more.

The lighting panel may be fastened directly to, or suspended from, the building structure by movable support hangers, which can be adjusted by as much as 2″ in each direction—a total of 4″ that allows for the variations, discrepancies, and obstructions found in almost every building.

air and temperature control

Vaporizing Oil Burner Wall and Floor Furnaces: complete new line provides full automatic heating for small houses; each unit equipped with electric ignition system that controls combustion and temperature without need for pilot light, eliminating extra fuel consumption. Available in models suitable for shallow pit, basement, or wall-recessed installations; units may be set safely against wood. Capacities range from 50,000 to 85,000 Btu. Iron Fireman Mfg. Co., 3170 W. 106 St., Cleveland 11, Ohio.

Power Exhauster: up-blast type, ready for installation, with exceptionally low silhouette designed to cut down danger of overturning; largest model, rated at 22,000 cfm, stands only 54″ high. High-tensile, cast aluminum fan blades follow latest development in air foil design. Totally enclosed motor. Gallaher Co., 4108 Dodge St., Omaha 3, Nebr.

Automatic Heating Plant: designed for low-priced, small homes. Interchangeable unit is designed to accommodate oil or gas burners; in spite of compact size—22″ square—furnace will heat, humidify, filter, and circulate warm air to every room. Rated capacity of 80,000 Btu with .75 gph oil input, and 65,000 Btu with 82,000 Btu gas input. Majestic Co., Huntington, Ind.

Model 2000 Thermobloc: gas- or oil-fired industrial heating plant, capable of 2 million Btu per hour, with normal air output of 22,000 cfm. Equipped with twin heat exchangers, four diffusers that can be rotated a full 360° to any position desired, and blower fan powered by 10 hp motor. Unit requires less floor space and head room than most conventional space heaters. Pratt-Daniel Corp., Thermobloc Div., 2 Meadow St., South Norwalk, Conn.

"Water-Saving" Air Conditioners: new line of medium-tonnage, self-contained units designed to meet most municipal regulations on water consumption and disposal; completely wired, piped, dehydrated, charged, and tested for operating conditions specified for each individual job. Produced in 15 and 20 ton capacity ranges to serve offices, super markets, banks, restaurants, and other commercial and industrial applications. Trane Co., La Crosse, Wis.

Unitaire Air Conditioner: 10 hp, self-contained unit, encased in thermally and acoustically insulated cabinet, is 91″ high when top mounted, and 61″ x 32″ at base, making it ideal for fitting into recesses to save floor space. Two double-inlet, 12″ fans deliver 4000 cu. ft. of air per minute; adaptability for heating is provided. Unit is suitable for offices, stores, and other applications calling for economical air conditioning. Westinghouse Electric Corp., 200 Readville St., Hyde Park, Boston 36, Mass.

construction

Stri-Color Shingles: asbestos-cement siding with striated, embossed surface, available in brown, gray, or green. Special "Dura-Shield" factory finish helps to repel water and resist staining. Flintkote Co., 30 Rockefeller Plaza, New York 20, N. Y.

Adjustable Welding Connector: new, adjustable clip offers ¼″ adjustment which facilitates erection of welded-steel, multiple-story building construction; is claimed to save steel, produce fabrication economies, and speed erection. J. H. Williams & Co., 400 Vulcan St., Buffalo 7, N. Y.

doors and windows

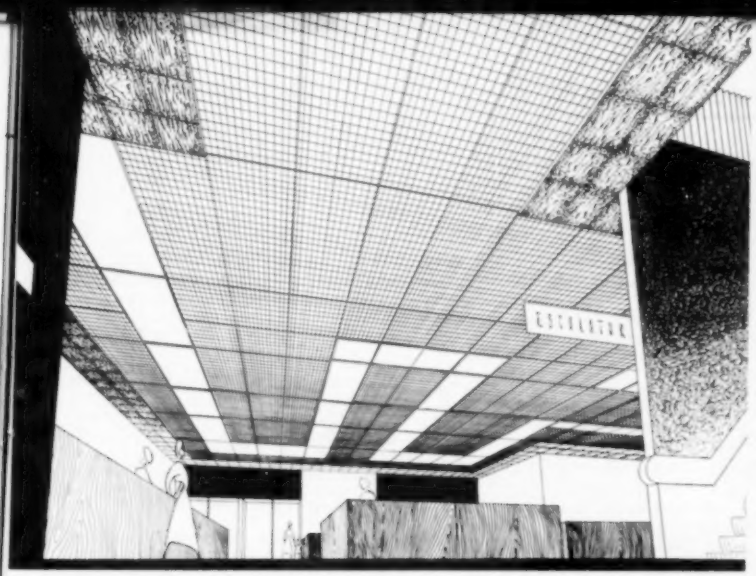
Full-Vision Rolling Door: rolling steel door now furnished with windows, 12″, 16″, 20″, or 24″ in height and 20″ in width, made of aeroplane plastic lights shaped and assembled to coil with door. Window permits clear, unobstructed view of exterior and interior, admits light to aid in controlling truck movements; may be installed in existing rolling doors as well as in new. Cornell Iron Works, Inc., 36 Ave. & 13 St., Long Island City, N. Y.

Marmet Window-Wall Sash: welded aluminum sash, ready to install in frame, available in single sash width and height, to a multiple of 3 sash wide or additional multiples of 1, 2, or 3 sash and 1, 2, or 3 sash high. Glass opening takes stock size Thermopane; equipped with operating hardware. Marmet Corp., Wausau, Wis.

Carrara Glass Plates: structural glass push plates for doors, furnished in any required size in full range of colors. Permanent finish needs no polishing; can be kept clean merely with damp cloth. Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa.

electrical equipment, lighting

"Grid-Light": lighting system utilizing grid-like arrangement of prewired channels, single-pin T12 slimline lamps, and translucent plastic shields, designed for surface-mounting installations against flat ceilings of any material. System is said to increase lighting efficiency, facilitate maintenance,



One important advantage of these adjustable supports is that any adjustment, whether sidewise or lengthwise, up or down, is made *after* the erecting of the lighting panel; which means that no exact dimensioning is required when attaching the supports into a poured-concrete ceiling structure. They also have the advantage of economy, since it is only necessary to secure them at dimensions of 8′ x 3′ to 4′ —using about half the number of support-devices essential to the conventional suspended-lighting system.

The lower grids are designed to receive all types of shielding media and acoustical treatment. The shielding materials may be used singly, or in combination; thus, special effects can be created with eggcrate mental louvers interspersed with molded-plastic panels, glass panels, or corrugated-plastic sheets. Spotlights may be inserted at will in desirable locations. In stores, where changes of departments and different seasons call for alterations in lighting effects, the many possible variations prove particularly advantageous.

Area Illumination is entirely pre-wired and needs only to be connected to the feed wires in the same manner as an ordinary lighting fixture. The manufacturers state that this product is not custom-made. The system is completely standardized and may be ordered in the same manner as one would order steel casment windows. Smithcraft Lighting Division, Chelsea 50, Mass.

simplify specification, and make installation easier. Recommended for classrooms, stores, offices, drafting rooms, and similar locations. Benjamin Electric Mfg. Co., Des Plaines, Ill.

Watchmaster Stand-by Light: automatic light, equipped with glass jar rechargeable battery and visible ball-float hydrometer, supplies emergency light instantly when power failures occur. Electrical components especially engineered for constantly energized stand-by duty. Choice of floodlights or sealed beam lamp heads. Unit can be wired for permanent location or supplied with cord and plug for semi-portable installation. Carpenter Mfg. Co., Somerville, Mass.

Day-Brite PBM Lighting Fixture: fully enclosed, luminous indirect fixture, developed by M.I.T. engineers, reduces maintenance to minimum and assures long life and trouble-free operation. May be installed as individual unit or in continuous run. Available for two 40w fluorescent lamps, or for two 40w and two 60w slimline lamps. Day-Brite Lighting, Inc., 5455 Bulwer Ave., St. Louis 7, Mo.

Silver-Spot Adapter: portable spot or floodlight fixture, involving no installation expense, designed for use in any porcelain ceiling receptacle and with swiveling devices; suitable to wide variety of display and accent lighting in stores, restaurants, and similar commercial interiors. Consists of steel housing, porcelain adapter receptacle, aluminum reflector, and concentric louver. Silvray Lighting, Inc., Bound Brook, N.J.

R-254 Circline Fluorescent Fixture: two-lamp lighting fixture, of hard-baked enamel, has 8", 22w preheat type, standard-start lamp mounted inside 12", 32w instant-start lamp, both arranged so as to form concentric circles of light; decorative glass centerpiece fastened to fixture by knurled thumb nut. Suitable for applications in residential kitchens, bedrooms, hallways, bathrooms, as well as for commercial applications (small offices, waiting rooms, etc.) Sylvania Electric Products, Inc., Ipswich, Mass.

finishers and protectors

Flow Kote: rubber-based flat wall paint, easily applied, durable, thoroughly washable, is thinned with water, acts as its own primer, and resists chipping. May be applied with brush or roller-coater without causing lap marks or streaks. Du Pont Co., 350 Fifth Ave., New York 1, N.Y.

Mason-Coat 310: one-coat, oil-based paint designed for decoration and protection against moisture infiltration, is applicable to interior and exterior surfaces of concrete block, cement, brick, stucco, and similar masonry surfaces. Available in white and several tints. United Laboratories, Inc., 16801 Euclid Ave., Cleveland 12, Ohio.

insulation (thermal, acoustic)

Finger Strap: ¾"-wide metal strapping for use in applying all types of insulation material, quickly, economically, and permanently, to ducts, pipes, tanks, and flat walls. Available in continuous coils, in thicknesses from .015 to .35, in plain steel, galvanized, stainless 430, or monel steel. A. J. Gerrard & Co., 1950 Hawthorne Ave., Melrose Park, Ill.

sanitation, water-supply drainage

Ideal Distributing Box: prefab, hexagonal distributing box of heavy welded steel, for sewage disposal systems; insures uniform distribution to entire drain field and is easily inspected at heart of system. When one line becomes clogged, remaining lines share load; one inlet and five outlets are sized for tight seal within standard field tile. Ideal Sanitation Co., 8052-A Montgomery Rd., Cincinnati 27, Ohio.

specialized equipment

Meteorological Equipment for Industrial Site Location: newly-developed electronic wind-speed and -direction recording system provides means of accurate investigation into meteorological conditions affecting projected plant sites so that later corrections to plant waste-discharge operating procedure can be minimized. System makes recordings from threshold below one mph up to 30 mph, on standard pen-type, strip paper recorders. Unit is energized by its own battery supply, weighs only 100 lbs. Beckman & Whitley, Inc., 1031 San Carlos Ave., San Carlos, Calif.

surfacing materials

Colorbestos: large-sized asbestos-cement sheet, in random-ribbed pattern, for exterior siding of houses, comes in 32" x 96" x 3/16", covers large areas quickly, yet is convenient size for handling. Manufactured in strong colors of red, yellow, brown, green, and three tones of gray. Johns-Manville Corp., 22 E. 40 St., New York, N.Y.

pa MANUFACTURERS' LITERATURE

★ *Editors' Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.*

air and temperature control

1-173. June-Aire, 4-p. folder illustrating operation of completely automatic winter air-conditioning system, available for light- or heavy-oil fuel, gas, or hand- or stoker-fired coal. Components, cross-section of heater room, system designs. American Foundry & Furnace Co., Dept. CV, Bloomington, Ill.

1-174. Anemostat Air Diffusers, AIA 30-J (Selection Manual 40), 64-p. revised booklet containing full technical data on selection of proper air diffusers for air-conditioning systems; complete new section on high-pressure units for high-pressure, high velocity systems. Types, accessories, typical specifications, installation data, list prices, weights, contents table, photos, drawings. Anemostat Corporation of America, 10 E. 39 St., New York, N. Y.

1-175. How to Have a Carrier Weathermaker Home, 31-p. booklet outlining new way of planning homes, with freedom from many old technological restrictions, by means of installing air-conditioning system that cleans air, cools or heats it, and circulates it throughout house. Economic advantages, plans and other drawings, photos. Carrier Corp., 300 S. Geddes St., Syracuse, N.Y.

1-176. Chelsea Fan and Blower Catalog, AIA 30dl (400), 20-p. catalog, including loose-leaf price list on fans, blowers, packaged penthouse units, louvers, and shutters. Types, applications, dimensions, specifications, photos, diagrams. Chelsea Fan & Blower Co., Inc., Plainfield, N.J.

1-177. How to Have Comfort from Moving Air (1952), 200-p. revised and enlarged catalog providing data on heating, cooling, and ventilating equipment made by various manufacturers; includes air circulators and dehumidifiers, fans for all requirements, heating systems, oil burners, unit heaters, floor furnaces, clothes dryers, farm ventilators, etc. Illustrations, contents table, manufacturers' index. Torrington Mfg. Co., Torrington, Conn.

construction

3-145. Architectural Uses of the Stainless Steels, AIA 15-H-1. Photographic examples of architectural applications of stainless steel and basic information about properties. Availability, parts and sections, drawings. American Iron and Steel Institute, 350 Fifth Ave., New York 1, N.Y.

★ **3-146. Macomber Steel Trusses,** 20-p. catalog. Basic design data on industrial plants and commercial buildings completely built of structural-steel framing members—trusses, open-web purlins and joists, decking and siding, columns, eave struts and girts. Plant layouts, structural details drawn to scale, safe-loading tables, general information, photos. Macomber, Inc., 1925 10 St., N.E., Canton, Ohio.

3-147. Reinforced Portland Cement Stucco (1), 4-p. bulletin giving complete details and specifications for reinforced Portland cement stucco for both new and remodeling work. Photos, drawings. Metal Lath Mfrs. Assn., Engineers Bldg., Cleveland 14, Ohio.

3-148. Robinson Clay Product Co. (R-450-15), 4-p. folder. Illustrations of vitrified clay pipe, perforated clay pipe, flue lining, terrace tile, wall coping, chimney tops and bases, and septic tanks, all of clay. Sizes, dimensions, weights, diagrams, drawings. Robinson Clay Product Co., 65 W. State St., Akron 9, Ohio.

3-149. You Can Build Schools Now, 12-p. booklet, on methods of using proven clay-masonry construction in schools to reduce use of steel to absolute minimum. Typical examples, photos. Structural Clay Products Institute, 1520 18 St., N.W., Washington 6, D.C.

3-150. Specifications for Vermiculite Concrete Floors, AIA 4-E-13, 12-p. booklet. Concise data given on use of vermiculite-sand concrete as fill over structural floors, as floor slab over supports on relatively close spacing, and as slab laid on ground. Specifications for vermiculite concrete floors on ground (with and without radiant heating units) that are topped with sand concrete. Drawings. Vermiculite Institute, 208 S. La Salle St., Chicago 4, Ill.

doors and windows

4-176. Aluminum Windows for Moderately Priced Homes, 8-p. brochure. Standard types and sizes of solid-aluminum residence casements, also available as fixed windows. Brief descriptions and photos of basement windows and casement hardware; installation and assembly details. Alcasco Products, Inc., 1780 Creston, Muskegon, Mich.

4-177. Amweld, AIA 16-A, 12-p. catalog. Installation advantages of interior steel door and frame units and steel sliding closet door units. Sizes, types, construction data, photos, drawings. American Welding & Mfg. Co., Warren, Ohio.

★ **4-178. Window Magic,** 16-p. booklet, including rotating color selector, illustrating many examples of drab window areas converted into decorative wall areas by color integration of Venetian blinds, draperies, and walls. Full-color photos, construction features of Venetian blinds, suggested color combinations, available colors for blinds. Levolor Lorentzen, Inc., 391 W. Broadway, New York 12, N.Y.

4-179. Stay-Strate Door (1114-5109), 4-p. folder on warp-proof, flush-veneer door with Kaylo (incombustible material of asbestos fiber and hydrous calcium silicate), suitable for residences, apartments, hotels, hospitals, and institutional uses. Advantages, construction data, specifications, typical installations. U.S. Plywood Corp., 55 W. 44 St., New York, N.Y.

4-180. Flexseal, AIA 35-P-6, 4-p. folder describing flexible-type weatherstripping utilizing steel-spring assembly that holds wool felt strips tightly in place, sealing all window gaps and openings. Specifications, general information. U.S. Weatherstrip, Inc., 463 W. 5 St., Bountiful, Utah.

4-181. Residential Aluminum Windows, 8-p bulletin. Specifications for standard and modular size casement and awning aluminum windows. Sections, details. Ware Laboratories, Inc., 3700 N.W. 25 St., Miami, Fla.

electrical equipment, lighting

Booklet describing fluorescent and incandescent lighting fixtures designed and manufactured to meet specific home lighting requirements and to insure correct lighting for every kind of domestic seeing task. Types, uses, illustrations. Also, 6-p. folder presenting line of incandescent luminaires, for either close ceiling mounting or suspension, designed for use with all-silvered or semi-silvered bowl lamps. Models, photometric data, coefficients of utilization, construction features. Silvray Lighting, Inc., Bound Brook, N.J.:

5-119. Silvray Components for Light Conditioning Recipes for the Home (LC50 4 S)

5-120. Luminaires by Silvray (50-1-S)

finishers and protectors

6-66. Busatti Adhesive Coating, 4-p. pamphlet on plaster-like ready-mix providing smooth, marble-hard finish to wallboard interiors; not affected by dampness, is easily washed. For use on dry wall interiors only. Advantages. Busatti Products, 575 Old Country Rd., Westbury, N.Y.

6-67. What's a Silicone? (SIL-1), 34-p. booklet. Detailed answers to 51 questions tion on practically all forms of silicone products: polishes, water repellents, protective coatings, lubricants, rubber, electrical insulation, etc. Photos, thumb index. Dow Corning Corp., Midland, Mich.

6-68. Hydroban, 4-p. folder giving basic data in form of questions and answers, on

transparent, liquid water repellent for most masonry surfaces and wood surfaces; not a coating, it penetrates surface and becomes integral part of material. Hydroban, Inc., 59 Prospect St., Brooklyn 1, N.Y.

6-69. Your Answer Book on Penta, 40-p. booklet. Detailed answers to 51 questions regarding pentachlorophenol wood preservative, covering types of applications and methods of use. Monsanto Chemical Co., 1700 S. 2 St., St. Louis 4, Mo.

6-70. Your Floors and How to Maintain Them (1000), 40-p. booklet on proper maintenance of commercial, industrial, and institutional floors, plus listing of floor cleaners and cleaning equipment, finishes, preservatives, etc. Table of contents, photos. Multi-Clean Products, Inc., 2277 Ford Parkway, St. Paul 1, Minn.

6-71. Rustoleum Stops Rust! (251), 16-p. catalog. Guide to various types of rust-preventive coatings, floor sealers, and other protective coatings. Technical data, applications, resistance qualities, drying time, color samples. Rust-Oleum Corp., Evanston, Ill.

insulation (thermal, acoustic)

9-73. Fissuretone and Perforated Mineral Tile (5114A), 12-p. booklet describing two types of acoustical tile made from mineral fiber, one with fissured texture, the other with perforated surface; both are incombustible, moisture-, rodent-, and abrasion-resistant. Typical application photos, sound absorption coefficients and specifications of test samples. Celotex Corp., 120 S. La Salle St., Chicago 3, Ill.

9-74. Kaylo Heat Insulation (KH3-517), 8-p. booklet illustrating numerous ways in which hydrous calcium silicate insulation material is used in industrial and commercial projects for temperatures as high as 1200-F. Shapes and sizes, physical characteristics, recommended thicknesses, insulation efficiencies, photos, illustrations. Owens-Illinois Glass Co., Kaylo Div., Ohio Bank Bldg., Toledo 1, Ohio.

9-75. Insulating Sheetrock (WB55), 4-p. folder describing fireproof gypsum wallboard, laminated with aluminum foil which serves as vapor barrier, heat reflectant, and cold repellent. Advantages. U.S. Gypsum Co., 300 W. Adams St., Chicago 6, Ill.

sanitation, water supply, drainage

19-244. New Way to Cut Man-Wasted Hours (SP60-2123), 4-p. folder. Recommendations for proper placement of water coolers, based on extensive study made by G-E of drinking-water requirements of industrial plants and offices. Sample floor plans, table for computing payroll savings gained by using recommendations. General Electric Co., Air Conditioning Div., Bloomfield, N.J.

specialized equipment

19-245. P-A-X Business Telephone System (1735), 16-p. circular describing intercommunication system, composed of standard automatic equipment: required number of telephones, wiring, and switchboard (with associated power supply unit); suitable for all types of small and large organizations. Switchboard models, diagrams, photos, installation data, special services. Automatic Electric Sales Corp., 1033 W. Van Buren St., Chicago, Ill.

19-246. Acousti-Booths, AIA 35-R, (A-107), 4-p. bulletin. Full information on 4 types of floor and wall telephone booths, of steel or wood, with patented acoustical construction that reduces sound by 50%; suitable for any noisy location, such as bus terminals, power stations, railway stations, hotels, airports, drug stores, etc. Construction features, advantages, specifications, prices. Burgess-Manning Co., 5970 Northwest Highway, Chicago 31, Ill.

19-247. Curtain and Drapery Hardware (15), 8-p. catalog illustrating various types of traverse equipment for curtains and draperies. Uses, typical installations, construction details and other drawings, finishes, advantages, photos. Gould-Mersereau Co., Inc., 35 W. 44 St., New York 18, N.Y.

19-248. The Original Tubular Steel School Furniture, 30-p. booklet. Wide range of classroom chairs, desks, chair-desk units, tables, all made with seamless, welded steel tube framing and birch seats and backs. Construction data, dimensions, schedule of sizes, details, photos. Heywood-Wakefield Co., Gardner, Mass.

surfacing materials

19-249a. Traffic Concrete—A Study in Specialization, 20-p. booklet outlining properties and advantages of high density, extremely hard, concrete, floor topping with maximum resistance to wear and abuse; four prepared types to meet every traffic need. Step-by-step comparison of low water ratio of material, as opposed to wet mixes, applications, photos. Flash-Stone Co., Inc., 3723 Pulaski Ave., Philadelphia 40, Pa.

19-250. Cold Process Built-Up Roofs, 6-p. pamphlet. Specifications for cold process built-up roofs, using especially treated felt, liquid roof preservative, and plastic roof preservative, providing interlocked, all-weather roof covering. One- and two-ply application data, photos. Hallemite Mfg. Co., 2446 W. 25 St., Cleveland 13, Ohio.

★ **19-251. Formfree Decorated Wall Tile** (151), 8-p. booklet. Illustrations of glazed mosaic tile, 6" x 6", patterned with free, flexible designs, for use as decorative panels or large, continuous wall surfaces. Patterns, full-color plates, typical applications. Mosaic Tile Co., Zanesville, Ohio.

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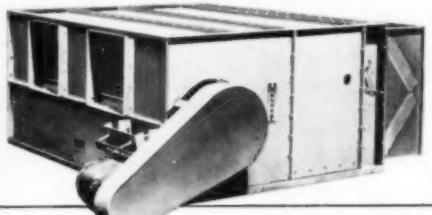

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Above: St. Jude's Hospital, Montgomery, Alabama. Architect: James C. Mayde. Red Kalistron on ladder and furniture, contrasting Kalistron above chair rail.

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restaurants

By Abraham W. Geller*

There must be a reason, other than a predominance of bad cooking, why the percentage of failures in the restaurant world is higher than in any other business enterprise. One suspects that the continued reappearance of mock-Colonial and rococo settings; the inept combinations of materials, many spurious; the wide use of banal murals and garish mosaics—all help maintain this percentage.

Exceptionally fine cooking will, in rare cases, draw patrons into strange surroundings. I have eaten for a number of years in a Chinese restaurant esteemed by some as one of the finest in the country and where, because I know one of the owner's closest friends, I am permitted to eat in the storeroom. I am thankful that this resourceful move on the part of the owner to provide space is not a universal solution.

The charm of a mellowed establishment, well-maintained over the years, combined with a long tradition of good cooking, will undoubtedly draw continued patronage. Here the warm and gracious atmosphere has been carefully nurtured for many years and any accelerated aging will appear false.

What then should be the approach of an owner and architect in planning a restaurant that will flourish? They can best insure their success by a contemporary solution which, if sensitively conceived, will become a favored dining place of the present and future.

The experienced restaurateur is worth his weight in magazine articles on restaurant planning. An architect with a respectful ear can gather valuable fundamental information from a sagacious owner on his particular methods of management and the level of standards between the ideal and the real. How important is the headwaiter's pivotal position between bar and dining areas and is a planned bottleneck at this point necessary? How much area should be given to patrons waiting for tables and how near to the bar should the space be located? What importance should be given to current standards on seating? How far can the kitchen be from the farthest table and still permit desirable service? What are the spheres of authority of the head chef, the headwaiter, the manager, and the owner; and what physical provisions are to be made for carrying out their several responsibilities. All the above questions, and many others, are best answered by the restaurateur.

The owner is, of course, not infallible. He may be over-optimistic about the potential number of his patrons and should be advised against building too large a restaurant (much better an overcrowded, than a sparsely filled one). Also, his desire to pack the house may lead him to crowd the seating. I recall an owner of a chain of fine restaurants who insisted that the standard booth width be made appreciably narrower and who, wedging himself into the model booth, had to be forcibly extricated.

Depending on the size of the project, the architect may call on the expert aid of lighting, acoustical, and kitchen-planning consultants. It is the designer's task to co-ordinate and sometimes temper their recommendations. It may be wise to eschew a too-perfect sound treatment so that the result is a gentle hubbub rather than an acoustical deadness, a condition to be reckoned with as much in the restaurant as in the theater or concert hall. Standard lighting recommendations of 10-foot-candle power for dining areas should be accepted with reservations. More often, a lesser intensity of lighting will produce a more cordial atmosphere and prove more flattering to the patrons.

The restaurateur and his architect may, in the near future, be challenged by higher standards, for there is in America a lively new interest in fine food and fine cooking. A continued interest in superior cuisine may result in the renaissance of more gracious manners and surroundings for dining. A restaurant may then become an integral part of our culture—a meeting place closely related to the gaiety and activity of the street, square, or park, where one can dine leisurely and repair his spirit as well as his hunger.

* Architect, New York, N. Y.

restaurants

suspended brass lighting fixture
banquette fabric: red and black

striated plywood

acoustical tile ceiling

wool carpet

data

Banquette: architect-designed/ Equipment Mfg. Co., 1615 Michigan Ave., Chicago, Ill.

Banquette Fabric: "Transportation Cloth"/ "Avisco" fiber/ 50" wide/ red-and-black, yellow-and-black, gray-and-black, brown-and-black, ultramarine, "vibrant" green, black/. list: $13.50 per yard/ Knoll Associates, 575 Madison Ave., New York 22, N. Y.

Carpet: special/ uncut wool pile/three shades of blue/ A. & M. Karagheusian Inc., 295 Fifth Ave., New York, N. Y.

Ceiling: "Acousti-Celotex"/ Celotex Corp., 120 LaSalle St., Chicago, Ill.

Chair: #71 USB/ Saarinen design/ molded plastic shell covered in foam rubber/ tubular steel legs in brushed chrome or dull-black enamel finish/ list: $119.00/ Knoll.

Chair Fabric: (outside) "Apples"/ Stig Lindberg design/ cotton 53" wide/ 17½" repeat/ red, green, or dark gray on white; brown-on-rust, charcoal-on-brown, and black-on-blue/. list: $4.80/ Knoll.

Chair Fabric: (inside) "Naugahyde"/ vinyl plastic on cotton backing/ 50" or 54" wide/ U. S. Rubber Co., 1230 Sixth Ave., New York 19, N. Y.

Lighting Fixture: (bracket) architect designed/ brass/ M. A. Van Esso, 154 W. Erie St., Chicago, Ill.

Lighting Fixture: (recessed) #206 A/ pin point/ list: $23.00/ Leolin Lighting Inc., 49 Elizabeth St., New York 13, N. Y.

Lighting Fixture: (suspended) #FH 252/ special/ Paavo Tynell design/ brass/ price on request/ Finland House, 41 East 50 St., New York 22, N. Y.

Mural: Karin and Ernest van Leyden, Brentwood, Calif.

Table: (chrome pedestal and wood top) Charles Tateur, Merchandise Mart, Chicago, Ill.

Table Base: black crackle finish/L & B Products Corp., 210 Spring St., New York, N. Y.

Waiter's Station: architect-designed/ Equipment Mfg. Co.

Waiter's Station: (top) "Textolite"/ laminated plastic/ General Electric Co., Pittsfield, Mass.

Walls: plaster painted white and "Weldtex"/ striated-plywood painted gray/U. S. Plywood Corp., 55 West 44 St., New York, N. Y.

	Harlequin Room—Chicago, Illinois
architects	Holabird & Root & Burgee
contractor	William Koenig

This room takes its name from the mural which depicts a harlequinade, the comic episode of the 16th Century Italian commedia dell' arte. The theme is played with restraint. Only harlequin paintings by Degas, Dufy, and Picasso are further interpretations of the name.

The assignment was to design for the Harvey chain a restaurant of leisurely pace, spaciousness, and a touch of elegance. The architects have successfully fused a delicate atmosphere with the plain duties of maintenance. In happy combination here are the materials chosen for durability but sensitively contrasted for texture, kind, and color.

The vulnerable surfaces of the chairs, for instance, are covered with tough plastic, but the outer sides, which escape hard wear, are in a colorful print. For the banquettes, a textured fabric is used to contrast with the smooth plastic and cotton of the chairs. But, again, there is no sacrifice of toughness, because the choice is a closely woven fabric of hard viscose fiber, designed for heavy duty.

One of the perpetual problems of contemporary interior design is the conflict between the desire for plain surfaces and the need for stain and soil camouflage. For the carpet in this room, the architects have specified one woven with three shades of blue. The impression is one strong color but the variation minimizes stain and soil.

We like the nice transition between areas by change of ceiling height, the variety of seating, and the lighting fixtures astutely chosen to suit. Banquettes are covered in red, chairs in gray plastic and black-blue print, and carpet is dark blue. Striated plywood is painted light gray, walls and ceiling are white. *Photos: Hedrich-Blessing*

p/a interior design data

restaurants

suspended brass lighting fixture

fieldstone wall with wide mortar joints

data

Banquette: architect-designed/ S & S Woodworking Corp., 457 West Broadway, New York, N. Y.

Banquette Fabric: "Naugahyde"/vinyl plastic with fabric backing/ 50" or 54" wide/ U. S. Rubber Co., 1230 Sixth Ave., New York 19, N. Y.

Bar: mahogany top/birch-apline front/ S & S Woodworking.

Ceiling: acoustical plaster.

Chair architect-designed/ unavailable.

Curtain: "Chinese Coins"/ designed by Noemi Raymond/ 50" wide/ 18" repeat/ red, black, gray, or green-on-white, brown-on-gray, black-on-blue, black-on-red/ list: $4.50 per yard/ Knoll Associates, 575 Madison Ave., New York 22, N. Y.

Curtain Hardware: Gould-Mersereau Co., Inc., 35 West 44 St., New York, N. Y.

Doors: (entrance) bronze frame/ Englecraft, 370 West St., New York, N. Y.

Door Hardware: (pulls) architect-designed/ polished brass/ Elmer T. Hebert Inc., 211 East 37 St., New York, N. Y.

Door Hardware: Sargent & Co., New Haven, Conn.

Exit Sign: special design/ Green-Lite Sign & Sales Inc., 305-307 West 140 St., New York, N. Y.

Floor: random-width oak planking/ 4", 5", 6", 7", and 8"/ oak or walnut plugs/ E. L. Bruce Co., Memphis, Tenn.

Heating and Air-Conditioning Outlets: special/ U. S. Register Co., Battle Creek, Mich.

Lighting Fixture: (recessed) #207/ Ledlin Lighting Inc., 49 Elizabeth St., New York 13, N. Y.

Lighting Fixtures: (suspended) architect designed/ special/ Ledlin.

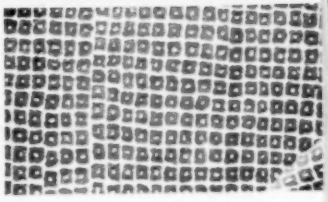
Mosaic Panel: Max Spivak, 175 Madison Ave., New York, N. Y.

Paint: Pratt & Lambert Inc., 79 Tonawanda St., Buffalo 7, N. Y.

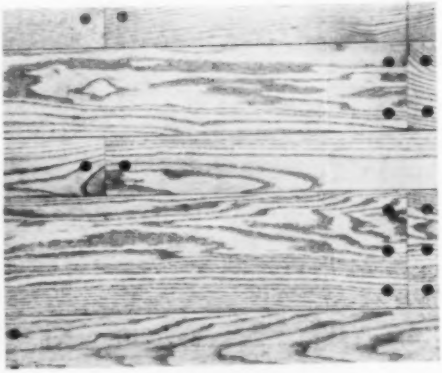
Stair: oak risers and treads/ brass posts/ birch handrail/ A. Mestel Stair Building Corp., 24 Dodworth St., Brooklyn, N. Y.

Wall Covering: (south wall) "Fabricona"/ burlap painted brown-black/ 36" wide/ list: approx. $1.50 per yard/ H. B. Wiggins Sons Co., Bloomfield, N. J.

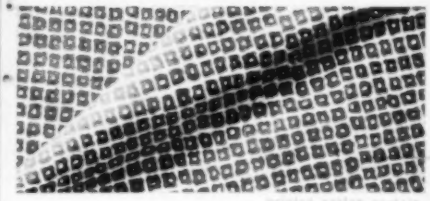
Walls: fieldstone, brick, and 12" wide Douglas fir paneling.



random-width oak



	Al and Dick—New York, New York
architects	George Nemeny & Abraham W. Geller
contractor	Great Eastern-Victor Corporation



The visual quality of this steak house suggests substantial food, hearty eating. The rough natural materials, the generous chairs, the glistening brass speak of the sizzling platter. These architects are practical planners, but they are showmen too. And this is important in restaurant design, where atmosphere invites as well as food. The mechanical copy of a style is dreary fare but nostalgia is human stuff. Here it is creatively employed to evoke a sense of warmth and substantialness associated with the pub.

Materials used are the kind that require little upkeep and, in fact, improve with age. The existing brick wall was peeled of plaster, tin, and paper. The opposite wall is paneled with 12″-wide Douglas fir, and the wall between dining and kitchen is warm-colored fieldstone with wide mortar joints.

Lighting is subdued and frankly meant to flatter. At the wood wall, coved lighting is directed to the arched ceiling and down on photographs of famous patrons. The floor is pegged, random-width oak. Lighting fixtures, entrance doors, and balustrade are all polished brass. The only applied colors are the brown-black paint on the burlap wall covering at entrance, blue-plastic covering for banquettes, and the red-and-white cotton curtain at the stair. *Photos: Ezra Stoller*

Douglas fir paneling

p/a interior design data

restaurants

acoustical tile cypress walls

	The Cookery—New York, New York
architects	Roy S. Johnson & Julius Stein
contractor	Accurate Construction Company

black-green asphalt tile

The use of few materials and a simple color scheme give a sense of largeness and calm to this quick-order restaurant. Large areas of cypress and oak make a good background for the special murals and the playful touches. Use of materials is architectural—the dramatic lighting for cakes, the choice of chimney lamps and wire chairs—with an awareness for mood and display. The old "ice cream parlor" chairs bought from second-hand shops are painted white. (One first-hand source for these sturdy reliables is included in our data listing and a photograph of the model is shown.) Because of a low budget, architects saved an existing front, the recessed lighting fixtures, and the acoustical-tile ceiling, which they painted green. Counters are comfortably wide and low—the scrubbed wood tops in effective contrast with the glossy black floor.

Photos: Lionel Freedman

data

Chair: (metal) "ice cream parlor"/ plywood or "Masonite" seat/ set: (unfinished) $7.45/ brown, green, black, or aluminum: $7.80/ custom colors: $8.55/ National Chair Co., 412 N. 4 St., St. Louis 2, Mo.

Chair: (wood) #6090 57/ maple/ list: $12.20/ Thonet Bros. Inc., One Park Ave., New York 16, N. Y.

Ceiling: existing acoustical tile, painted green.

Counter: oak/ Accurate Construction Co., 330 West 42 St., New York, N. Y.

Floor Covering: #209/ "Verde Antique"/ Kentile, Inc., 58 Second Ave., Brooklyn, N. Y.

Lighting Fixture: (recessed) existing.

Lighting Fixture: (suspended) #97/ "Lyktan"/ chrome tubular frame, milk-glass globe, red-enameled holder, chain, and globe, red-enameled reflector with white underside/ list: $30.00/ Bonniers, 605 Madison Ave., New York 22, N. Y.

Mural: Anton Refregier, Glasco Turnpike, Woodstock, N. Y.

Restaurant Equipment: Barth Equipment Co., 390 Fourth Ave., New York, N. Y.

Table Base: "ice cream parlor"/ National Chair Co.

Table Top: oak/ Accurate Construction.

Walls and Fascia: cypress.

Villa Sweden—New York, New York

architects	Warner-Leeds
contractor	Albert Kennerly

translucent plastic panels

white and dark green figure on orange ground

lighting fixture, with pleated paper shades

blue carpet with white squares

data

Carpet: blue with white squares/ James Lees & Sons Co., Bridgeport, Pa.

Chair, Stool and Table: existing

Ceiling Paper: white, yellow, and dark green on orange ground/ United Wallpaper Merchandise Mart, Chicago 54, Ill.

Curtain Fabric: #2403/ natural linen 54" wide/ list: $1.65 per yd./ Robert McBratney, 121 Franklin St., New York, N. Y.

Curtain Fabric: (inside) #4187/ imported Swiss octu net/ 93" wide/ list: $2.85 per yd./ W. B. Quaintance & Co. Inc., 227 E. 56 St., New York 22, N. Y.

Curtain Hardware: The Kroder-Reubel Co., 556 Meeker Ave., Brooklyn 22, N. Y.

Lighting Fixture: architect designed/ black iron/ Morsol Iron Works, 279 E. 150 St., Bronx, N. Y.

Lighting Fixture Shades: "Le Klint"/ pleated paper/ list: $7.00 and $10.50/ Bonniers, 605 Madison Ave., New York 22, N. Y.

Mirrors: "gunmetal"/ Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa.

Skylight Panels: "Fiberglas"/ Polyplastex United, 1365 Commerce Ave., Bronx, N. Y.

Walls: plaster painted cocoa; whitewashed brick and random oak.

Two rooms were thrown open to each other as much as structural requirements would permit. Then, since this was a headquarters for smörgasbord, treated in the domestic scale and spirit associated with Scandinavia. The large room with windows on either side was respected for its rigid symmetry. A high ceiling was coved on window sides and covered with a gay-patterned paper, which is the dominating color in the room. It brings the vertical dimension into more friendly scale; also drawing attention away from the irregular walls. Oak fascias terminate the coved ceiling and are baffles for fluorescent strips that filter light above: curtains hang below. At central points, the architects mounted specially designed chandeliers. These are of black iron, capped with crisp pleated shades of Scandinavian design. Lighting can be dramatic and focal, gently diffused from the coves, or a combination of both. Alternate lighting and choice of opaque linen or open-net curtains changes the mood for day or evening dining. To relate the two rooms, carpet and wall color are one. Painted plaster walls are cocoa, carpet blue with small white squares, ceiling paper predominately orange. In the bar section, there is also some whitewashed brick and random oak. All furniture was left by previous tenant. *Photos: Wheaton Galentine*

The versatility of MICARTA® laminated plastic surfaces helped inspire the dramatic interiors of the home exhibit in the Museum of Modern Art. The room divider and storage wall, shown below, has a light gray MICARTA top. This surface was chosen because it blends discreet beauty with the ability to withstand all the known hazards and inconvenience of household wear.

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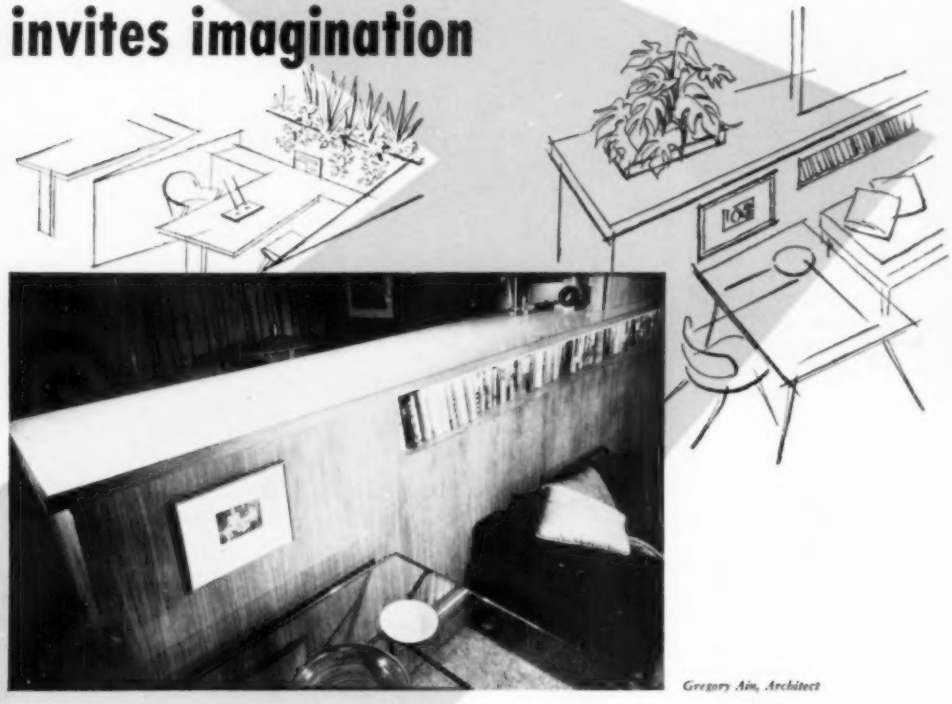

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Members' Penthouse at the Museum of Modern Art was recently renovated under direction of Philip Johnson. Lighting is by Richard Kelly, New York lighting consultant. Eames chairs are from Herman Miller Furniture Company, Zeeland, Mich., and tables are by Darrell Landrum for Avard, Inc., 66 W. 55th St., New York 19, N. Y.

Photo: Ezra Stoller

Knoll Associates introduced a new line of handwoven fabrics at the recent A.I.D. exhibit. The handsome collection combines wool, raw silk, mohair, hemp, linen, jute, cotton, and synthetics such as nylon, plastic, Orlon, and Celticle. A wide range of textures is offered chiefly for upholstery, but includes some suitable for curtain fabric. Bold vibrant colors are used, such as green with turquoise, cobalt blue, and black, or Mexican pink wool with orange nylon threads, or burnt orange with yellow plastic, or black wool with orange and pink stripes. All fabrics are 50" wide but may be as wide as 72" to special order. Combinations of specific colors and textures can also be to order. **Retail prices:** $18.00 to $30.00 per yard. Eszter Haraszty, head of the Textile Division is responsible for color coordination. Evelyn Hill designed the line for **Knoll Associates, 575 Madison Ave., New York, N. Y.**

The Herman Miller Furniture Company, Zeeland, Mich., has issued a new comprehensive price list illustrated with drawings of every item in the line. Complete facts and figures are systematically and clearly presented in a booklet that is a visual delight. Included is a cross reference which co-ordinates the price list with the forthcoming revised edition of "The Herman Miller Collection." The 40-page price list, 8½" x 11" with cardboard cover is available to architects and designers on request.

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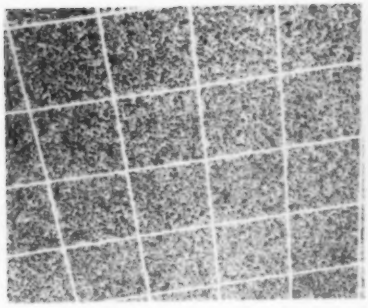

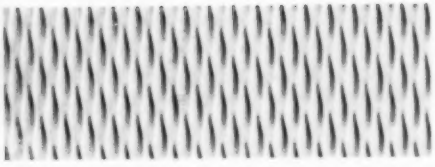

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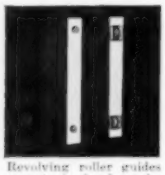

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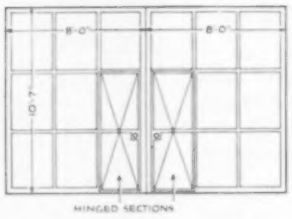

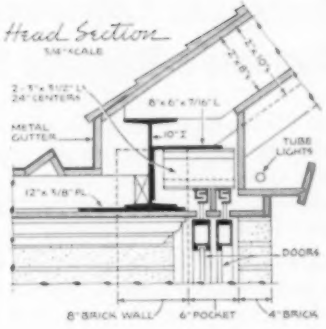

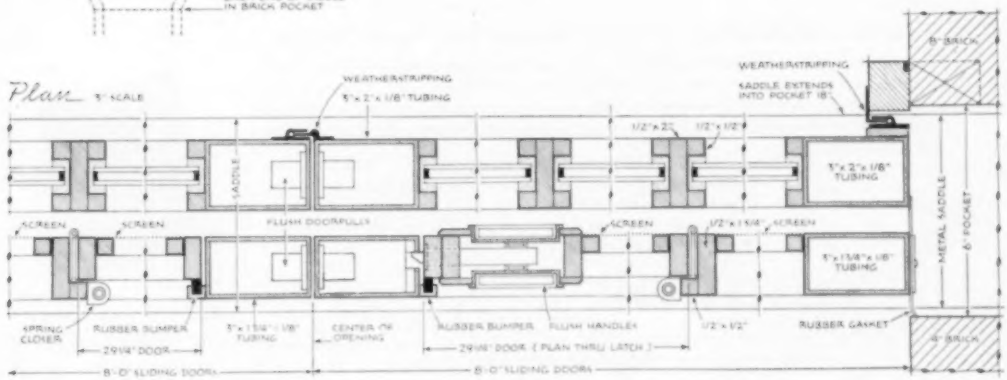

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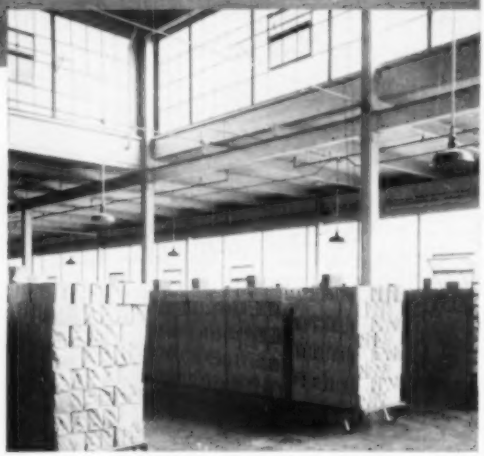

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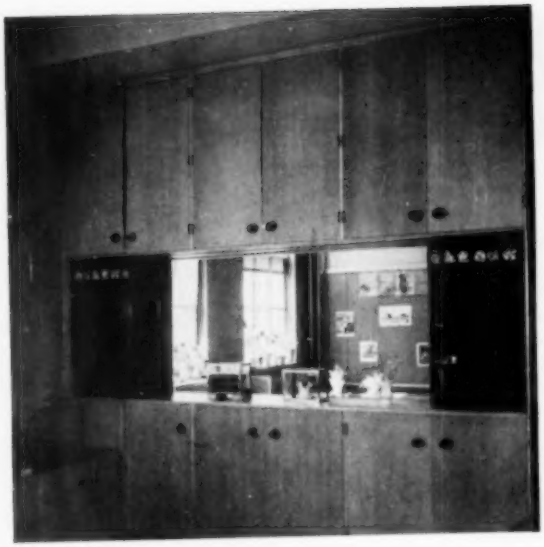

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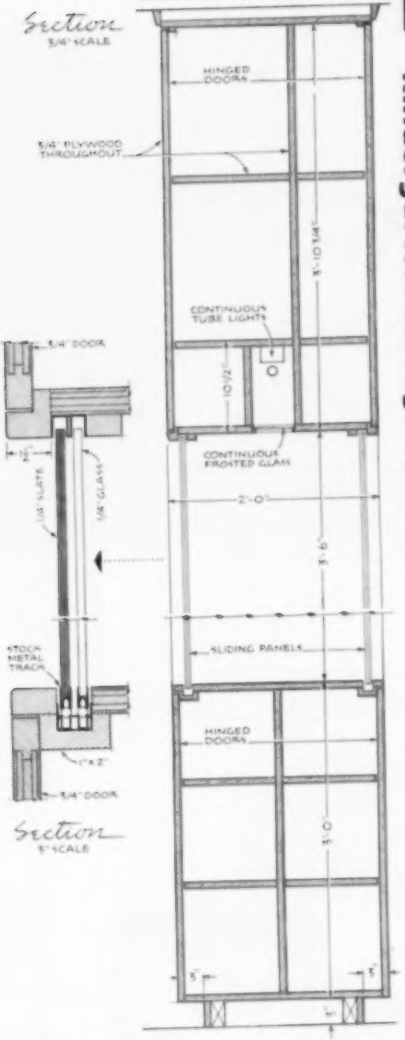

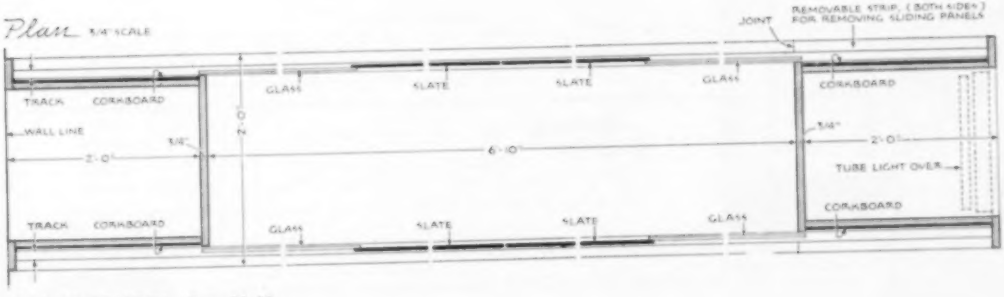

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A welcome relief from flat monotony . . . delighting the eye with balanced lines, clean hi-lites, deep soft shadows. Here is the door of depth . . the third dimension, to inspire the Architect, to brighten the Dealer's line, to help the Builder close the sale. Write today for full details on Morgan Tri-Panel, the Door of Dimension . . . of today . . . of tomorrow.

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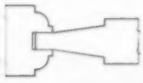
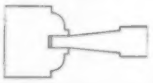


M-117 EXTERIOR DOOR Thickness: $1\frac{3}{4}$", with $11\frac{1}{8}$" hip-raised panels, true ovolo sticking, smoothly sanded overall.



M-1073 INTERIOR DOOR Shown at left. Thickness $1\frac{3}{8}$", with $\frac{3}{4}$" hip-raised panels. Both doors in Standard Sizes.

TRI-PANEL Tri-Panel relieves the wall-like flatness and makes the entrance to a room or a house the focal point, with a changing picture of correctly proportioned, sharply defined panels, ever changing with the source of light and the viewer's angle. Tri-Panel is the "Picture Door."

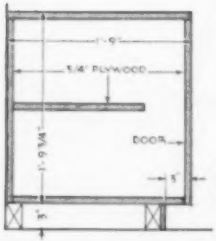
MORGAN COMPANY • Oshkosh, Wisconsin

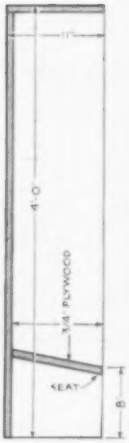
A great name in woodwork for 97 years • Doors • Entrances • Stairwork

Mantels • Corner Cases • Kitchen Cabinets • Morganwalls • Sash • Trim

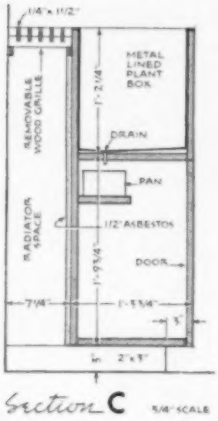
MORGAN WOODWORK

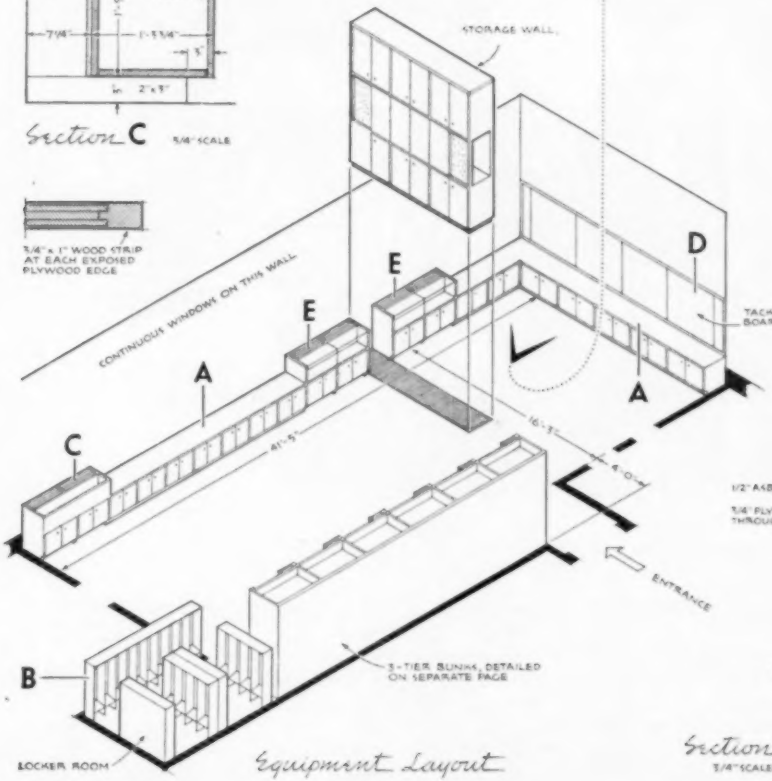
kindergarten: storage wall

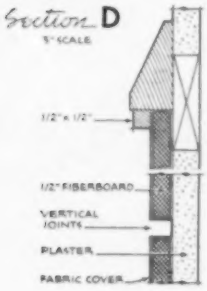


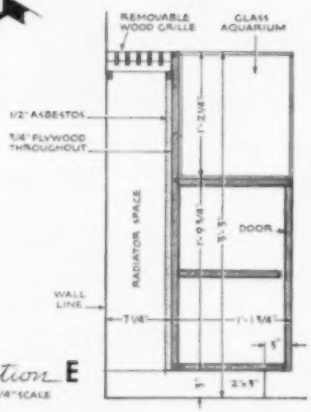


SUZANNE SZASZ









MILTON SCHOOL, Rye, N. Y.
Caleb Hornbostel, Architect

"Sign up now, boss – it's got Honeywell Controls!"

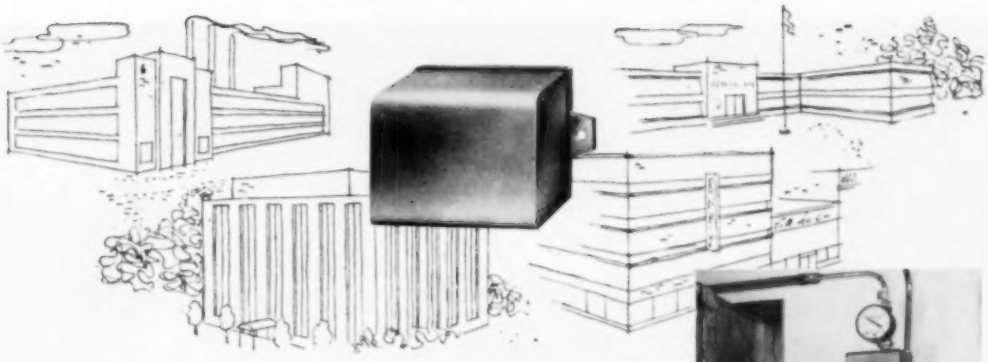
The *best* way to assure comfort in any building is to insist on Honeywell controls.

If *you* have a control problem, Honeywell can help provide the proper thermal environment for any client – anywhere – in any kind of structure.

A large staff of well-informed control engineers – in 91 different Honeywell offices across the nation – are experienced in doing just that. Or – there's a lot of literature that's yours for the asking – on the automatic control of heating, ventilating and air conditioning.

So, why not *talk to Honeywell?* Why not *write to Honeywell* about *your* control problem? And why not do it *now?*

For help with any control problem talk to Honeywell



for pin-point control of heating, ventilating and air conditioning

Specify Honeywell Automatic-Reset Pneumatic Relay

Stop temperature see-sawing and lagging

This magically accurate relay, made only by Honeywell, sets new standards of performance for pneumatic temperature controls. By using it, you can give clients closer temperature control, regardless of weather variations.

This remarkable Honeywell mechanism virtually *eliminates see-sawing temperatures* because it goes to work the instant the temperature deviates from the thermostat setting.

The Reset-Relay can be installed on any graduate-acting pneumatic system where close temperature control is desirable.

Get the complete story on this exclusive Honeywell control. Call your local Honeywell office or mail coupon below.

MINNEAPOLIS **Honeywell**

H HONEYWELL

First in Controls

This typical installation shows the Honeywell Reset-Relay used with a Honeywell insertion thermostat to control temperature of discharge air.

Here the Reset-Relay adds reset action to a Honeywell Grad-U-Stat, which controls other pneumatic devices such as a damper motor.

"and when I heard (your firm name) designed that building, I decided to move in."

FREE! *Personalized cartoon. For your 8¼" x 9" reproduction of this Hoff cartoon (incorporating your name or the name of your firm), fill out and mail coupon today.*

MINNEAPOLIS-HONEYWELL REGULATOR CO.
Dept. PA-6-131, Minneapolis 8, Minnesota

Gentlemen:

☐ Please send me information on your Gradutrol System of pneumatic controls.

☐ Please send me a free, personalized reproduction of the Hoff cartoon, inscribed with this name:

Name _____

Firm Name _____

Address _____

City _____ *Zone* _____ *State* _____

Wheeling Steelcrete ExM Vault Reinforcing

For the Federal Reserve Bank of San Francisco's newest branch in Portland, Oregon, it's a solid concrete vault reinforced with Steelcrete ExM Vault Reinforcing.

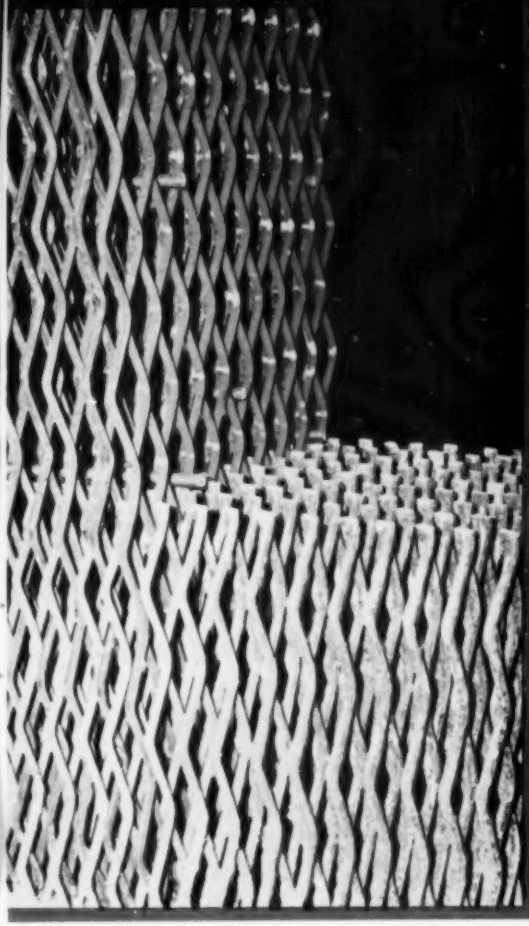
Not woven, not welded, but pierced and stretched from a single plate of solid steel, ExM proves the most easily placed and most highly resistant reinforcing known for modern bank vaults. Vault Reinforcing is but one of many materials for which architects, engineers and builders turn to Wheeling. The Wheeling line of building materials includes: Steelcrete Reinforcing Mesh • Expanded Metal • Metal Lath and Metal Lath Accessories • Tri-Rib Steel Roof Deck • ExM Angle Frame Partitions. Wheeling Steelcrete Vault Reinforcing supplied and erected by SOULE STEEL COMPANY. Architect: PIETRO BELLUSCHI; Consulting Engineer: MILES KAYE COOPER; General Contractor: ROSS B. HAMMOND CO.

WHEELING CORRUGATING COMPANY • BUILDING MATERIAL DIVISION

ATLANTA BOSTON BUFFALO CHICAGO COLUMBUS DETROIT KANSAS CITY LOUISVILLE MINNEAPOLIS NEW ORLEANS

FEDERAL RESERVE...

Here in this close-up is seen the sturdy interlaced reinforcing that Steelcrete gives to concrete walls.



In this photograph the simplicity of Steelcrete assembly is readily seen.

In the roof view, note the relatively long spans made possible by Steelcrete's lateral stiffness.

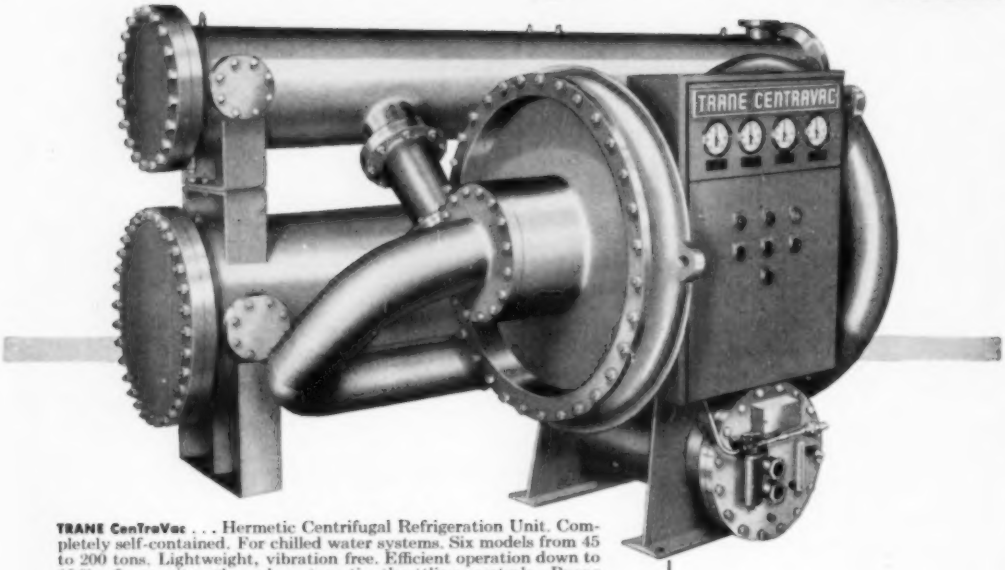
Wheeling

WHEELING, WEST VIRGINIA

NEW YORK PHILADELPHIA RICHMOND ST. LOUIS

MATCHED EQUIPMENT

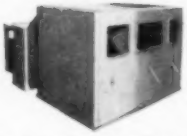
These TRANE products fit air conditioning results you



TRANE CenTraVac . . . Hermetic Centrifugal Refrigeration Unit. Completely self-contained. For chilled water systems. Six models from 45 to 200 tons. Lightweight, vibration free. Efficient operation down to 10% of capacity, through automatic throttling controls. Power consumption very closely proportionate to load through entire range.

TRANE Climate Changers . . . basic air conditioning units, built for widest range of requirements. Combine coils, fans, humidifiers, filters, dampers, 450 to 22,000 cfm.

TRANE Evaporative Condenser . . . for condensing refrigerant in the air conditioning system where water is scarce or expensive. Cuts water consumption as much as 90%.



TRANE Multi-Zone Climate Changer . . . A single air conditioner that provides heat or cooling or both simultaneously to as many as 8 different zones.

MANUFACTURING ENGINEERS OF HEATING, VENTILATING

TO MATCH THE JOB...

together to give you the want !

What air conditioning results do you want? Have you a simple cooling problem—or a complex one? Is it small or large? Does the job require only cooling or does it involve the related problems of heating and ventilating?

Regardless of the nature or scope of your next air conditioning project, the *complete* line of TRANE matched air conditioning products contains exactly the equipment needed to do a superlative job.

Consider these advantages:

1. UNDIVIDED RESPONSIBILITY The completeness of the TRANE line makes it possible to get the undivided responsibility of one manufacturer.

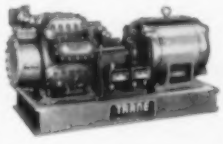
2. ONE SOURCE OF SUPPLY You save time by dealing with one competent specialist — the TRANE sales engineer — instead of many.

3. ONE SET OF CATALOGS From one handy and complete set of catalogs you can select all the equipment you need.

4. COMPLETE FLEXIBILITY There's a wide range of sizes and models. So flexible is the line, you can, for example, create 10 different 50-ton air conditioning systems.

TRANE Cooling Coils . . . Efficient fin-and-tube extended surface. For use with chilled water, well water, or direct expansion refrigerants.

TRANE Centrifugal Fans . . . Class I and II construction with backwardly inclined or forward-curved wheel design. Ruggedly built. Quiet operation.



TRANE Reciprocating Compressor . . . Capacities up to 50 tons. New, automatic cylinder unloading saves power through multi-step reduction.

TRANE Self-Contained Units . . . all-in-one package, 3- to 20-ton capacity. Heating coil optional. 15- and 20-ton available with built-in evaporative condenser.

TRANE UniTrane and Custom-Air Systems . . . Multi-room air conditioning. Individual room control of heating, cooling, humidifying.

Why not join the many architects, engineers and contractors who specify and install TRANE Equipment? Call or see your nearest TRANE sales engineer when you plan your next air conditioning project.

AND AIR CONDITIONING EQUIPMENT

TRANE

THE TRANE COMPANY, LA CROSSE, WIS.
Eastern Mfg. Division, Scranton, Pa.
Trane Company of Canada, Ltd. . . . Toronto
Offices in 80 U.S. and 14 Canadian Cities

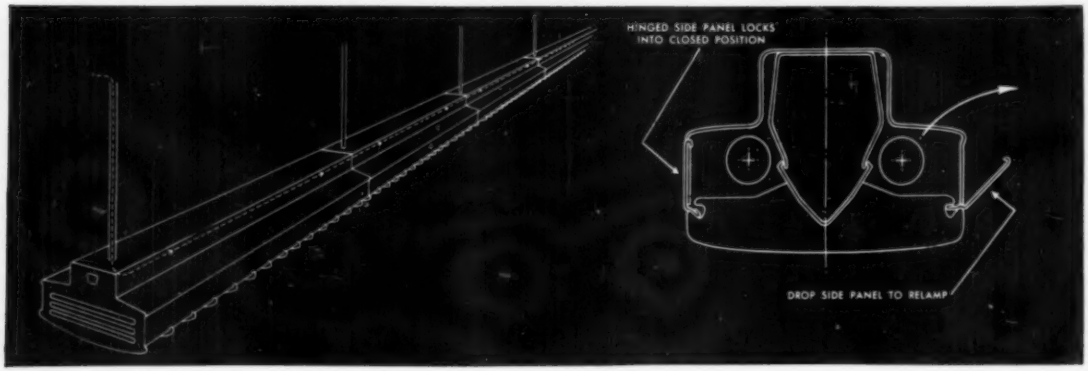
"Off-ceiling" lighting is attractive

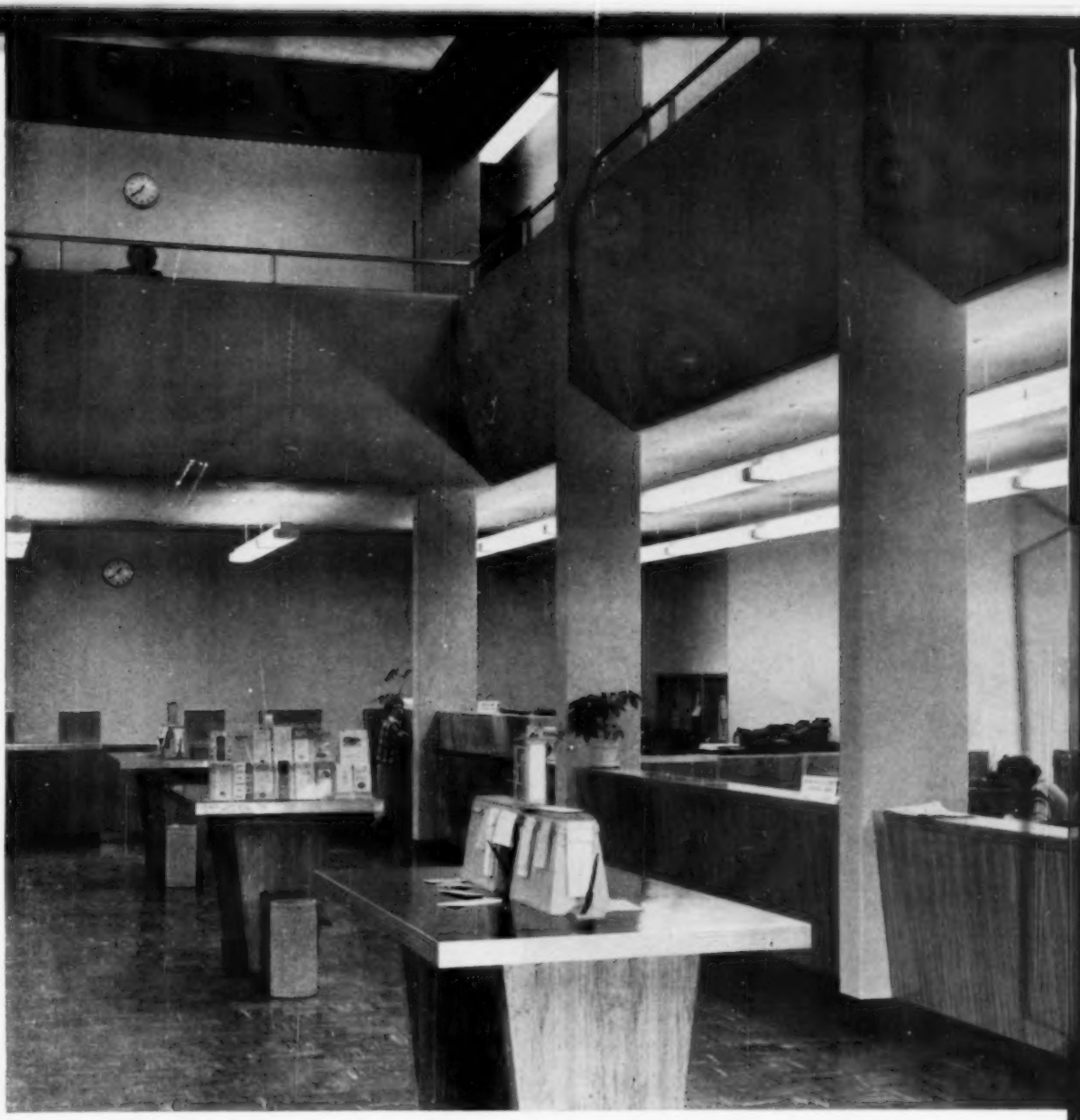
Creative design added spaciousness and beauty to this confined building interior with an unusually high ceiling. Modern, flexible lighting systems and more freedom in architectural design techniques are the basic ingredients.

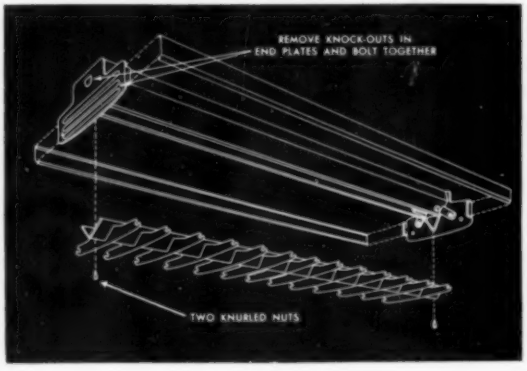
In the Anglo California National Bank's office at Hayward, California, the architect cleverly planned a second working level to minimize the high ceiling. An off-ceiling (or suspended) lighting system became an integral part of this design. Individual working areas are more than adequately lighted (over 40 footcandles) *with good, comfortable* lighting.

Open office spaces and carefully selected decorating colors help provide "spill-over" light for the main area; a device that might be used in many office buildings where the problem is one of high ceilings and limited space.

Westinghouse Type CC, 8-foot slimline fixtures with plastic sides were selected. Low in first cost, they are economical to install and maintain, since a minimum number of fixtures are needed. This is only one of a wide variety of lighting systems designed by Westinghouse for flexibility in planning. Send for B-5254, "Lighting Sets the Stage" and see an analysis of our complete commercial line. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-04507

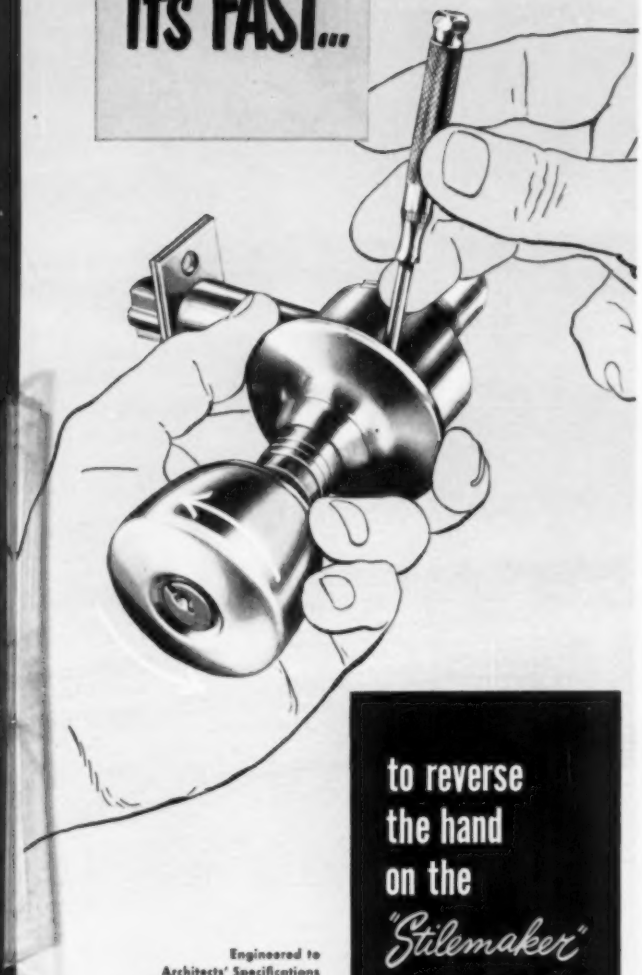






YOU CAN BE SURE...IF IT'S
Westinghouse
LIGHTING DIVISION
Edgewater Park, Cleveland, Ohio

It's EASY... It's FAST...



Engineered to Architects' Specifications

All Popular Functions

Knob Styles . . . in wrought or cast bronze or brass

to reverse the hand on the "Stilemaker" heavy-duty lock

In 4 simple operations, the cylinder of the new Russwin "Stilemaker" lock can be reversed for a different hand of door. It takes less than a minute. No serious installation delays if hand of door has been changed. When time is at a premium, this and other advantages of the "Stilemaker" lock count heavily in the architects' favor. Ask your Russwin Distributor for complete description of the advance-design "Stilemaker". Russell & Erwin Division, The American Hardware Corp., New Britain, Conn.

RUSSWIN®
"Stilemaker"

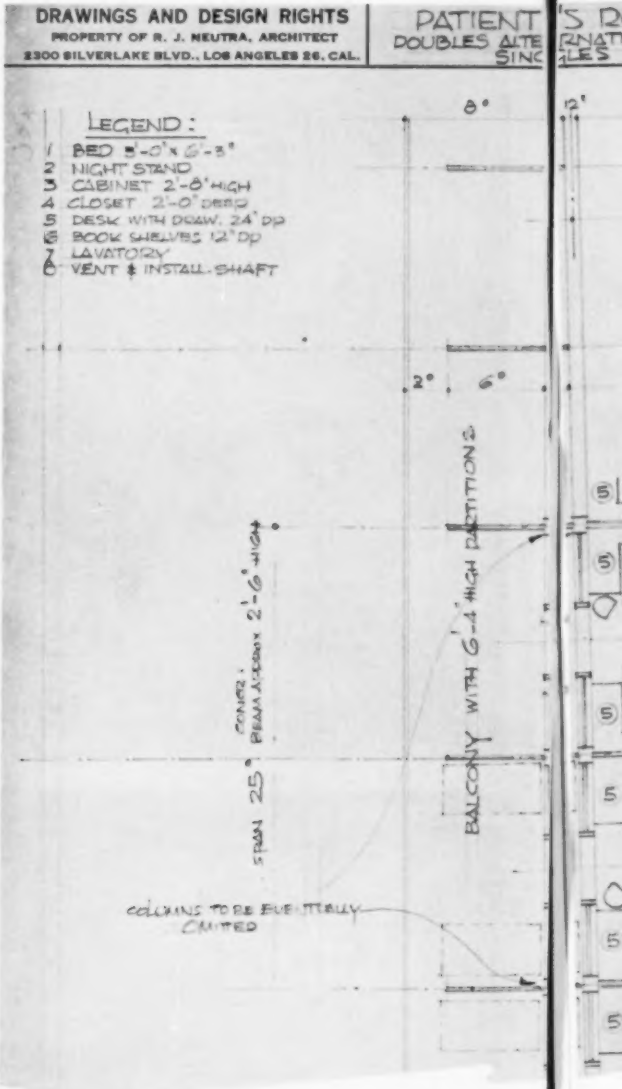
BY THE MAKERS OF THE ORIGINAL KEY-IN-THE-KNOB LOCK

combined sanatorium and university

(Continued from page 94)

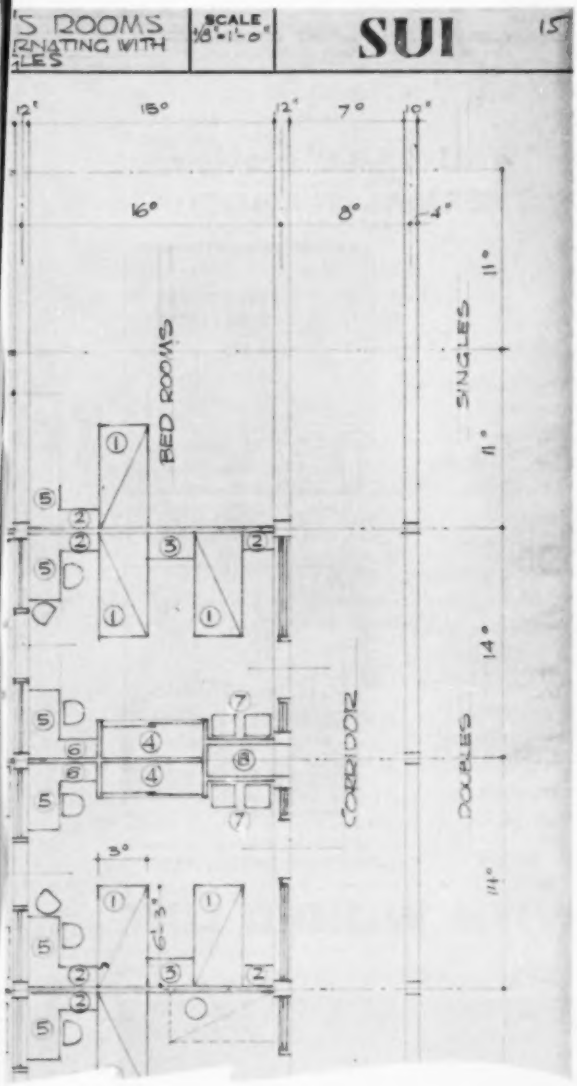
each functional element in the most detailed sort of way, with spaces for all areas firmly established and approved before incorporation into working drawings.

Indicative of Neutra's exhaustive preliminary study of a specialized project is the series of work sheets made for every type of room called for by the program, for each specialized room, and for such amenities as the rest balconies provided for most of the rooms, utility rooms, pantries, etc. Grouped together as "Study of Organization," these work sheets



served literally as units of the plans and insured inclusion of all provisions in the right place on the right floor.

Meteorological records for the area of the site were reviewed. And in the course of analyzing the impact of the new institution on the area chosen, it was pointed out that S.U.I. would bring with it better and faster communication services, snow removal in winter, economies and improvement of transportation facilities. Possible creation of a new parish for the district also was foreseen, with the addition of the sanatorium population to the community.



The New "Look" in the Los Angeles Area

ST. FRANCIS HOSPITAL OF LYNWOOD
Lynwood, California

SISTERS OF ST. FRANCIS
Owners

HUGH R. DAVIES, Architect
Long Beach, California

POZZO CONSTRUCTION CO.
General Contractor

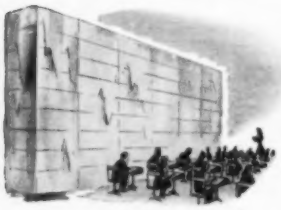
gets the new lock in builders' hardware

Russell & Erwin Division
The American Hardware Corporation
New Britain, Connecticut

RUSSWIN®
"Stilemaker"

HEAVY-DUTY CYLINDRICAL LOCK

The free-standing Nesbitt Syncretizer Unit Ventilator with Wind-o-line Radiation extending from both ends of it, at the sill line.

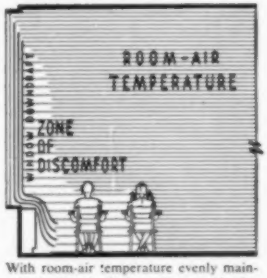


To solve your "WALL-OF-ICE" problem... this NESBITT THERMAL BLANKET:

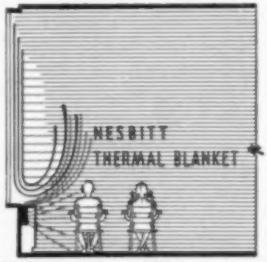
Architects who design and school officials who approve large window areas in the modern classroom may delight in their choice if *thermal comfort* has been considered. Unit ventilators could be selected by conventional standards if thermal comfort depended alone upon the classroom air temperature. But today we know that low-temperature exposures and cold window downdrafts may remain the robbers of pupil comfort, even in classrooms with close control of room-air temperature. The practical solution to the chilling effect of window downdraft is to release heat upward over the exposure.

For conditions of large glass area and cold outdoor temperature, Nesbitt provides Wind-o-line Radiation for integration with the Syncretizer. Wind-o-line consists of fin-and-tube radiation in a grilled wall-hung casing to extend from both ends of the ventilating unit for the full window length—and continued, if required, along cold outside walls. (Or it may be had as a component of the storage cabinets forming The Nesbitt Package.) Wind-o-line solves the problem of heat loss logically with a heat gain where and when needed. Convected currents of warm air temper the window downdraft and divert its flow upward and above the heads of the room occupants.

Inquire further of John J. Nesbitt, Inc., Philadelphia 36, Pa.



With room-air temperature evenly maintained, downdraft from large cold windows may remain the robber of comfort.



Nesbitt Syncretizer and Wind-o-line temper the downdraft, raise it out of impression range, and improve thermal balance.

NESBITT *Syncretizer* WITH WIND·O·LINE

Wind-o-line Radiation may be integrated as part of The Nesbitt Package of Syncretizer and storage cabinets.

crispness and sweetness

Castilian Sculpture From Gothic to Renaissance. *Beatrice Gilman Proske. Hispanic Society of America, Broadway at 155 St., New York, N.Y. 1951. 525 pp., 328 illus. $15.00*

This book is a well thought-out effort to recreate a certain phase of Spanish sculpture, that of Castilla in the 15th Century, and to do it chronologically. The photographs are sharp and clear; some are of architectural views, many more depict intricate details. These numerous illustrations define the mood of the time.

This sculpture is more than a borrowed garment, rather it takes form from the physical, intellectual, and emotional milieu of Castilla, and reveals particular qualities of boldness and playfulness; the contribution of Spanish artisans to this period of overlapping styles.

Crispness of carving and sweet smoothness are illustrated and accounted for, whether the material be stone, wood, or metal. To understand the surface treatment is not enough, we must look more deeply into the life of the age to appreciate its distinctive style, expressive of the emotion of the Spanish people at the time of the Catholic Kings.

The text exhibits a search of what has been and brings to light much new material. Its form is deliberate, yet one finds fascination in turning page after page. Here is charm combined with hard-moulded facts that cause excitement. We are able to follow the unexpected play of movement and the elaboration of originally simple motifs, so well are they described and pictorially presented.

H. A. L. BEHLEN

magazine index

The Architectural Index for 1951. *Compiled and edited by Erven J. Bell. The Architectural Index, 5532 Kenwood Ave., Chicago 37, Ill. 36 pp. $3.*

Erven Bell continues his good work for the architectural profession with his latest index to back copies (January 1951 to December 1951, inclusive) of leading architectural magazines—*Arts and Architecture, Architectural Record, PROGRESSIVE ARCHITECTURE, The Magazine of Building*—and also *Interiors*. All entries are arranged alphabetically. Articles about a specific building are indexed under the general building type and cross-filed under "Architects and Designers," also under locations, state, or foreign country. Under some headings, sub-

(Continued on page 146)

BOOKS RECEIVED

The Perspector. A device invented by Theodore A. De Postels. Reinhold Publishing Corp., 330 W. 42 St., New York 36, N.Y., 1952. $10

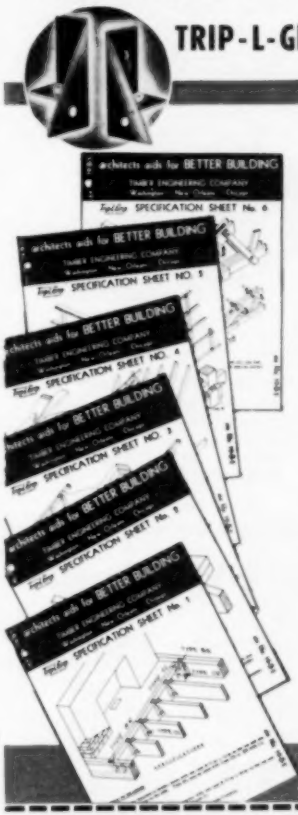
A Handbook of Perspective Drawing. James C. Morehead and James C. Morehead, Jr., Elsevier Press Inc., Houston, Texas, 1952. 168 pp., illus. $6

Hydrogen Embrittlement of Steel. R. W. Buzzard and H. E. Cleaves. National Bureau of Standards Circular 511, U. S. Government Printing Office, Washington 25, D. C., 1951. 29 pp. 20 cents

Stone Exposure Test Wall. Daniel W. Kessler and R. E. Anderson. Building Materials and Structures Report 125. U. S. Department of Commerce, Washington 25, D. C., 1951. 41 pp. 30 cents

TECO DATA SHEETS *free* TO ARCHITECTS

TRIP-L-GRIP FRAMING ANCHORS


architects aids for BETTER BUILDING
SPECIFICATION SHEET No. 6
SPECIFICATION SHEET NO. 5
SPECIFICATION SHEET NO. 4
SPECIFICATION SHEET NO. 3
SPECIFICATION SHEET No. 2
SPECIFICATION SHEET No. 1

Write for your set of these 12 handy specification sheets and help your clients to better homes.

No item of ours in 19 years has proven so popular with architects. These simple devices for all secondary wood connections help reduce costly plaster cracks and prevent sagging openings.

Every frame connection is more rigidly fastened with 18 gauge steel anchors. Because loads on nails are in shear, each nail performs at maximum efficiency. Trip-L-Grip Anchors eliminate notching and shimming joists — replace ledger strips — tie roofs securely to sidewalls, help prevent uplift due to wind.

NO NAIL WORRY — Full bodied nails come packaged with the Anchors. Anchors are in 3 types of rights and lefts. Anchors are 4⅞" high, rectangular flange is 1⅝" wide, and bent portion is 1⅝" long.

Mail Coupon Today

TIMBER ENGINEERING COMPANY, 1319 18th St., N.W., Wash. 6, D. C.

Please send me FREE set of AIA File 19B-5 Trip-L-Grip Data Sheets, anchor samples and prices.

NAME_____

FIRM_____

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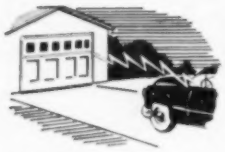
PA

R-W Garage Door Operators

- *Convenient*
- *Practical*
- *Efficient*

For every need—two R-W controls, designed and engineered for smooth sure performance

No. 1251 Standard control
—operates from drive-side key-switch



No. 1504 Radio control
—battery operated radio with dash control button opens and closes doors within 75 feet.

And . . . R-W 999 Garage Door Hardware
Complete overhead garage door hardware conveniently packed in one box! For single doors up to 200 lbs.; double doors up to 375 lbs. Write for folder giving full details.

Check these important R-W features!

✓ ***Easy to install***—Completely assembled, including track, in a single carton at the factory.

✓ ***Easy to service***—Simple adjustments, requiring no special tools, keep the doors working smoothly.

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OVER 72 YEARS

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"A HANGER FOR ANY DOOR THAT SLIDES"
AURORA, ILLINOIS, U. S. A. • *Branches in all principal cities*

REVIEWS

(Continued from page 145)

divisions are made geographically or by subject. All other articles are indexed by subject and not by article. E. T.

furniture characteristics

American Furniture: Queen Anne and Chippendale Periods. *Joseph Downs. Macmillan Company, 60 Fifth Ave., N.Y., 1952. 401 illus. $17.50*

Written by the outstanding authority on American decorative arts, this handsome book is a highly significant contribution to the field, one that will be welcomed by everyone who finds pleasure in beautiful period pieces and the architectural backgrounds for which they were made. There is probably no one better qualified nor more conversant with the subject than Joseph Downs. Before becoming curator of the recently opened Winterthur Museum, near Wilmington, Delaware, he was curator of the American Wing of the Metropolitan Museum of Art, New York, and previous to that was associated with the Philadelphia Museum of Art and the Museum of Fine Arts, Boston.

The author shows how social and economic changes in the 18th Century brought about the transitions to new styles and the manner in which they were reflected in homes of the day. Here are pictured more than 400 examples of Queen Anne and Chippendale pieces from the Winterthur collection, so the reader has a wonderful opportunity to study the characteristics of the different types of furniture made in this country during that time. There is a painstaking description of each piece shown, including place of origin, approximate date of construction, the maker's name and many other pertinent facts.

Not the least important in this comprehensive volume are the 10 exquisite color plates of period rooms at Winterthur, with the furniture in its authentic environment.

FRANK A. WRENSCH

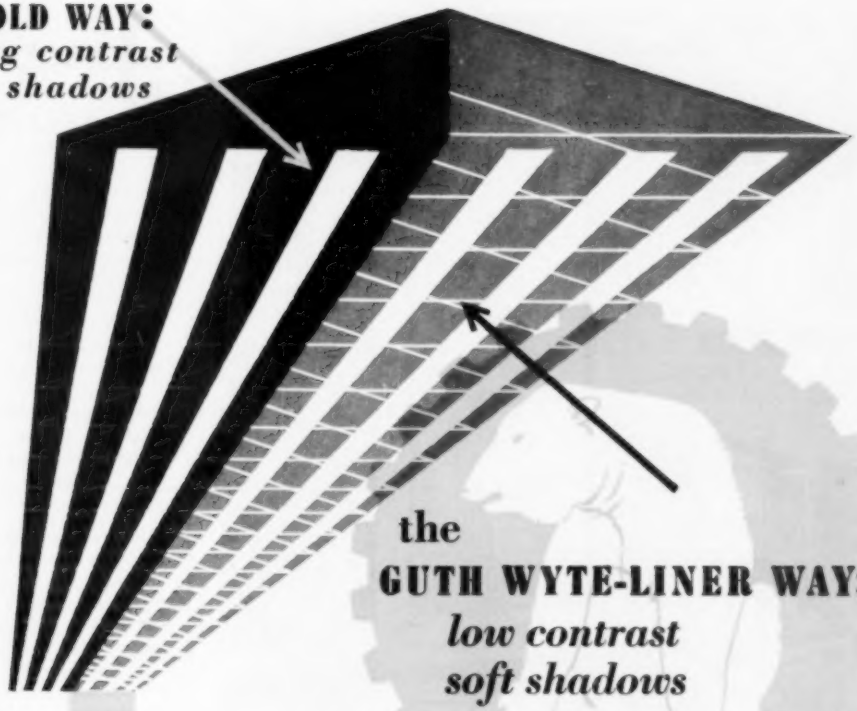
bank mortgages

Commercial Bank Activities in Urban Mortgage Financing. Carl F. Behrens. National Bureau of Economic Research, 1819 Broadway, New York 23, N. Y. 125 pp. $2.50

As may be implied from the title, this volume deals with the role of commercial banks as real estate agencies—lending on a short-term basis to finance construction, financing intermediary institutions such as mortgage loan companies, and

(Continued on page 148)

THE OLD WAY:
strong contrast
deep shadows



the
GUTH WYTE-LINER WAY:
low contrast
soft shadows

Here's a new idea in factory lighting to lift the eyestraining gloom off the ceiling:

ALL WHITE INSIDE—to reflect maximum light down and outward onto the working area.

ALL WHITE OUTSIDE—to reflect room light upward, brighten the ceiling and soften brightness contrast.

Easier to clean—reduces maintenance. Airflow Channel circulates air currents for longer ballast life.

GUTH Wyte-Liners are made in 2 and 3 lamp sizes for conventional 40-watt lamps and for 4- and 8-ft. Slimline. May we send you our 16-page Catalog 48-BB with complete details?

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Fiat Cadet Built-in Model 198 shown with Dolphin Door

View showing typical construction at door opening. Notice how metal lath and plaster are secured to front stile of shower. This construction prevents plaster cracks around door opening.

A shower unit designed for Built-in installation in bathrooms . . .

At last . . . a moderately priced shower unit expressly created for recessed installation . . . the only prefabricated metal shower cabinet that provides for continuity of the bathroom wall material. By the elimination of all apparent cracks or joints it becomes an integral part of the structure rather than merely a fixture.

The result is a rich, ultra-smart, custom-built appearance. Yet, the installed cost is considerably less than that of a built-up tile shower. It makes a permanently water-tight installation, will not crack and develop leaks with settling of the building, as often occurs when mortar joints are depended upon for water-tightness.

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In Canada—Fiat showers are made by Porcelain and Metal Products, Ltd., Orillia, Ontario

REVIEWS

(Continued from page 146)

making long-term mortgage loans on residential and commercial properties. Technical data are given on the legal aspects and scope of bank mortgage lending and bank experience with this type of lending, covering acquisition and servicing costs, foreclosure and loss experience, and yields. Findings in this report were based primarily on a sample study of 170 commercial banks and tabulations supplied by the Federal Deposit Insurance Corporation. E. T.

radioactive contamination

Control and Removal of Radioactive Contamination in Laboratories. *National Bureau of Standards Handbook 48. Government Printing Office, Washington 25, D.C. 24 pp. 15 cents*

This handbook is one of several authoritative reports on radiation hazards, prepared under auspices of the National Committee on Radiation Protection. While it is concerned mainly with operating procedures, it also contains considerable material of value to architects planning hospital or research radio-isotope laboratories; of particular interest to the architect are the "Introduction" and the chapter on "Specific Materials." The Introduction outlines the general problem of radioactive contamination and how it may be minimized. Chapter 5, "Specific Materials," gives a brief analysis of the most common surfaces in use in radio-isotope laboratories, from the point of view of contamination.

CARL B. BRAESTRUP

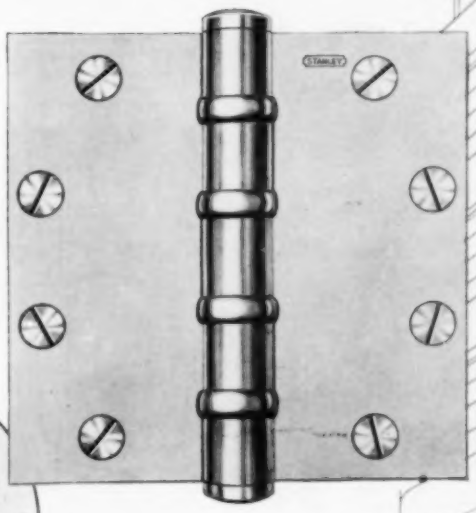
revised guide

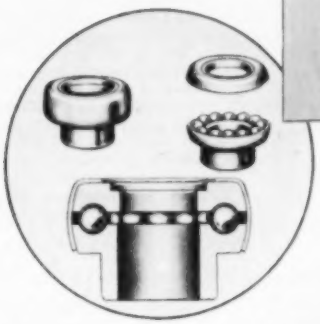
Heating, Ventilating and Air Conditioning Guide, 1952. *American Society of Heating and Ventilating Engineers, 62 Worth St., New York 13, N.Y. 1520 pp., illus. $7.50*

The newest A.S.H.V.E. Guide contains revised and increased technical data on 50 subjects related to the heating, ventilating, and air-conditioning industries. Chapter arrangements are still grouped under the familiar section titles: Fundamentals; Human Reactions; Heating and Cooling Loads; Combustion and Consumption of Fuels; Systems and Equipment; Special Systems; Instruments and Codes. Names and addresses of organizations which can supply the codes and standards are listed in the last chapter. One of the special features in the Guide is the larger Catalog Data section giving essential information and specifications on the latest equipment produced by 277 national manufacturers. A 32-page index simplifies the search for products and manufacturers, and a cross index is provided for both the Catalog Data and Technical Data sections. E. T.

a hinge that WON'T wear out

Stanley Full-Jeweled* Ball Bearing Butt Hinge





eliminates lateral as well as vertical wear

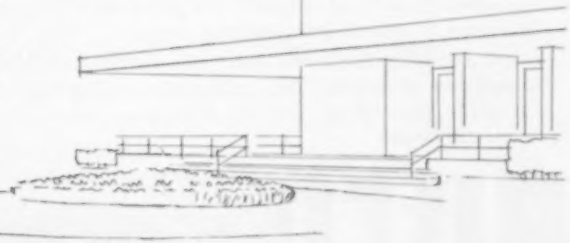
Here's a hinge you can specify for heavy doors, exterior doors, and doors receiving high frequency service — with complete confidence that it will last as long as the building.

The ball bearing construction of the Stanley Full-Jeweled* Hinge is designed to take lateral as well as vertical wear. With the load supported both ways on ball bearings, it is practically impossible to wear out this hinge.

Whenever there are heavy or busy doors in any building you design, you will insure your client's investment by specifying Stanley Full-Jeweled Extra Heavy Ball Bearing Butt Hinges†.

Exclusive Full-Jeweled Ball Bearing assembly consists of a movable and fixed raceway. When lateral thrust occurs, the movable raceway transmits the force directly to the bearings, which, in turn are held firmly by the fixed raceway. Thus, the weight of the door is supported both laterally and vertically on ball bearings.

† *All Stanley Extra Heavy Ball Bearing Hinges are equipped with Full-Jeweled Bearings.*



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The most famous doors in the world swing on Stanley Hinges

out of school

by Carl Feiss

The following editorial from *The Architect's Journal* of March 6, 1952, should be read by student and teacher alike and then followed by reading (on page 296 of that issue) the letter from Tony Moore, an R.I.B.A. student, called "Theory and Practice in Education."

research into education

"Two talks followed by discussions, which were attended by architectural students last week showed that students (in London, at any rate) are becoming anxious and worried about their training and their future prospects. They have good reason to be so. The postwar building boom on which both architects and students have staked so much has never amounted to a great deal and is now fast coming to a close. Students, on qualifying, are at last finding it difficult to get a job. The reason for worrying about their training, however, is not quite so obvious for those who remember early struggles to form schools, have lectures, for qualification by exams, for "five" program and for freedom to design in one's own *metier*. The student of a recognized school has, on paper, got everything. He has, in fact, got too much, including title of "architect" at the end of a five-year's course with one year's practical experience. The average five-year school course is over-crowded and unbalanced.

"He attempts a superficial study, backed by sparetime reading, of more separate and different subjects than any other profession in the world. He also attempts to apply his knowledge by designing (on paper) as many buildings in five years as he, alone, could design, detail, and supervise the construction of, in fifty years. His position, leaving school, is akin to that of Barrie's little sillies who don't know what they are—he is competent neither as an assistant nor as an architect.

"Our plea is for the formation of a study group who, now the battle for sound architectural schools is won, will look afresh at the problems of education and qualification. The R.I.B.A. is heavily overworked but the Architectural Association—that self-professed unique institution—has a precedent in these matters."

•

I wonder what is meant by "the battle for sound architectural schools is won." It certainly isn't won here and I can't conceive of finality in such a battle.

There is a bitter tinge to this editorial—a disappointment in postwar events, along with that constant frustration which seems to attend the analysis of architectural training these days. In this country, we have little cause to feel unhappy about postwar building. Despite some slowdowns and material shortages, the record is not too bad. We've done only fairly well in office buildings but there has been a spate of good churches. Design trends have been upward in the medium-sized but high-cost single house, but row houses and large apartment groups have reached a new low in taste and discernment. In fact, we have now reached a point where we are accepting as standards what less than a generation ago were considered substandards. I like some of the new factories we've been designing and we've had

(Continued on page 158)

Architects Lundeen and Hilfinger, Bloomington, Ill., designed this modern building for the Kemp Grain Co. of Lexington, Ill. Rilco Laminated wood beams are 36' long, spaced 6½' O.C. Rilco V columns are 10' 4" high.

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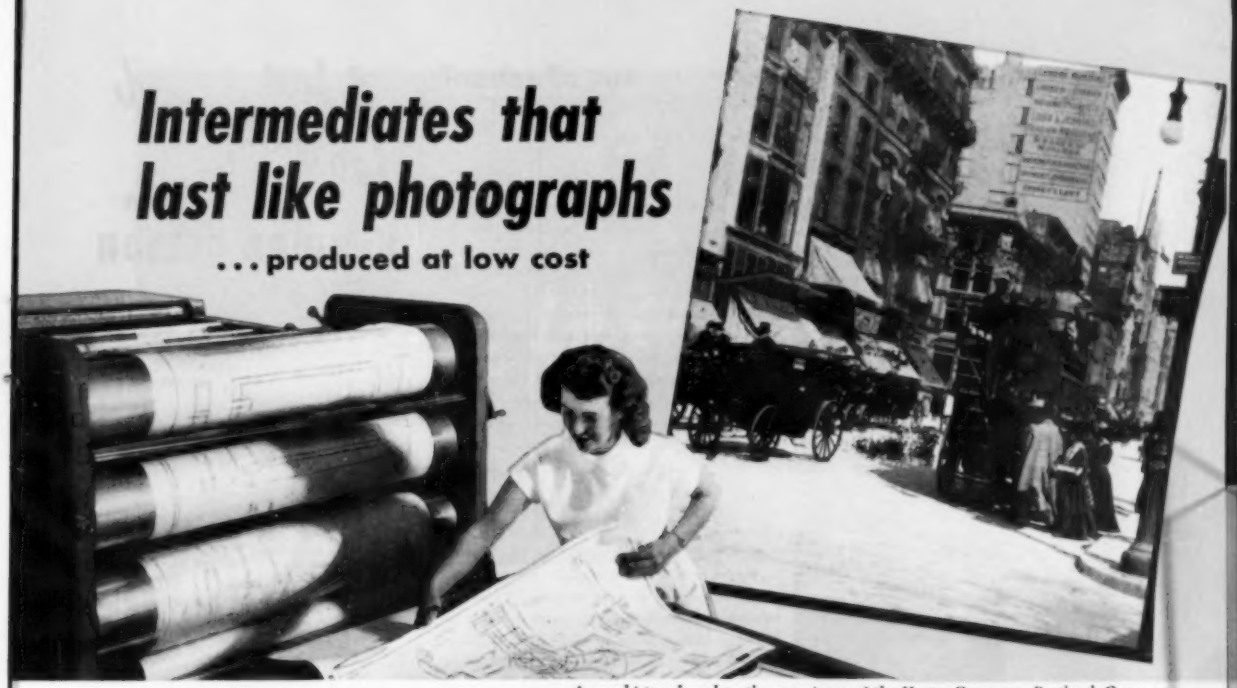

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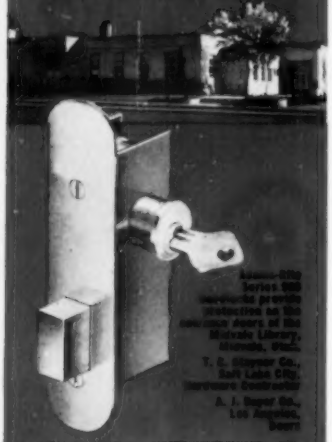

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SPECIALIZED LOCKS AND BUILDERS' HARDWARE

out of school

(Continued from page 150)

one interesting plan for a new town, but not very exciting building to go along with it. The last five or six years have been good years—not great years—for architects in the United States.

Our British friends, although frustrated by shortages in money, men, and materials have no cause to be ashamed of the quality of their small production. In mass housing they have done some fine things. Their new town plans are way ahead of our thinking and their public buildings are, on the whole, of greater dignity and taste than what we have been turning out.

Much of the matter of spirit in today's design rests on the quality emphasis to be found in our training systems. In the general subjects I have mentioned above, there has been little or no debate. We have no forum for discussion adequate to do justice to the merits of the issues to be discussed, or of sufficient stature to attract our attention. Debate on architectural design could be a television dream. I'll expand that idea sometime soon. I understand that one architectural educator, at least, is working on TV ideas. But I'm still going to look for great debates on architecture, on planning, and on the training for whatever systems of design, construction, and initiative develop. Perhaps the students will do it yet.

●

As I write this, the first issue of LINE magazine is on my desk. Some of you may remember that I put quite a plug in for the publication of this student architect's magazine, back in the September, 1951, OUT OF SCHOOL. I am happy to see the first issue and congratulate the editors on the fruition of their obviously arduous task. Frankly, I am sorry the issue does not have more meat in it, neat as it may be in format. Tony Moore's letter in *The Architect's Journal* mentioned above raises the kind of questions students should be asking, but LINE, in its first issue, starts with a gentle and slightly patronizing first editorial by Vi Hudnut, who was talking to boys, not men. This is followed by several high-school themes on the subject, "Why My School is Best." There are also some reproductions of student problems, without explanation, comment, or criticism.

Come on, men, get mad! Take a poke at something if you feel like it! Take a poke at me or any handy object, but get going! I want to see a student magazine that howls. You've published your first issue—now get rolling!

(Continued on page 154)

A fan for every need

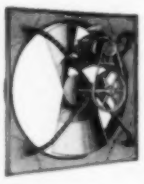
from

HERMAN NELSON

Direct Drive Unit Blowers *are available in 11 models. Wheel size from 6" to 11". Choice of speeds available in each size. These units may be mounted on floor, wall or ceiling.*

Direct Drive Propeller Fans. *Both small sizes for use in offices, laboratories, etc. and also heavy duty units commonly used where contaminated air cannot penetrate the totally enclosed motor. Sizes from 14" to 36". Capacities up to 12,400 c.f.m.*

Belt Drive Propeller Fans. *These versatile units deliver maximum amount of air effectively . . . quietly. Operate horizontally or vertically. Wheel diameters from 24" to 54". Capacities up to 36,000 c.f.m.*



Centrifugal Fans *for every Class I or Class II use. Equipped with statically and dynamically balanced air wheels of most advanced design. More than a hundred sizes and speeds. Extra quiet in operation.*

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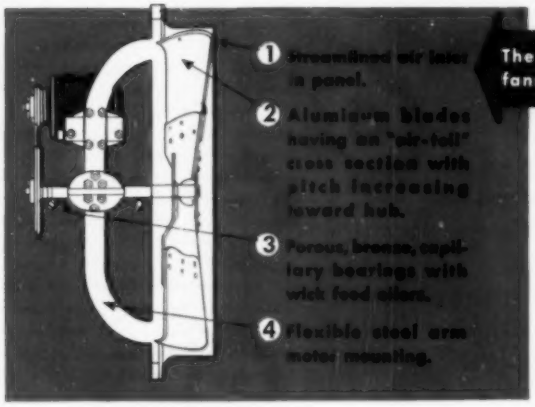
The Herman Nelson line includes Propeller Fans, Unit Blowers and Class I and II Centrifugal Fans. All Herman Nelson fans are tested and rated according to Standard Code of the National Association of Fan Manufacturers and the American Society of Heating and Ventilating Engineers.


1 Streamlined air inlet in panel.
2 Aluminum blades having an "air-foil" cross section with pitch increasing toward hub.
3 Porous, bronze, capillary bearings with wick feed oilers.
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Division of **AMERICAN AIR FILTER COMPANY, INC.**

MOLINE, ILLINOIS

out of school

(Continued from page 152)

And remember what I asked last September? "What is the program for LINE? What are some of the issues and principles it hopes to develop?"

●

The other day, I was walking down the elm-shaded walks of the University of Theleme, lost in the architectural nostalgias for which the university is famous. The warm June sun beat brightly on the library's ivy-covered walls and, between the buttresses, the lancet windows glowed with the pale blue of the cold cathode lights in the reading rooms behind little leaded panes. By a flight of steps to a handsome Georgian portico of what was obviously either a classroom building or dormitory, I paused to question a blue-jeaned co-ed and her two drooling escorts.

"Where," I asked, "is the School of Architecture?"

"The whicht?" she languished, and one of her pals dropped one of her books.

"Agriculture?" the other pal asked, his gaze wandering reluctantly to me.

"What team are they on?" asked the first palsy, having recovered his stance.

I explained gently that it was where they taught people to design buildings like those around us.

"Never heard of it," says the second walsy.

"Do they actually teach things like that?" she crooned, her eyes obviously seeing for the first time the buildings around us. "How cute!" and she giggled.

I left them to their more important affairs and plucking my long, grey beard, fixed with glittering eye one out of every three students I could corral, as I continued my search. The mystery thickened as my random sampling turned up no more than shrugged shoulders and an occasional misdirection. Finally an elderly professor told me that he was walking that way, just by chance, and would escort me to the door. As we strolled along, I asked him about the School of Architecture.

"Frankly," he said, "Although I have been on the campus 30 years, I have never visited it. I have heard that it does have a good reputation. Some of us occasionally meet the Dean at a President's reception, or at Commencement. He is said to be an excellent cook and to have traveled widely. I am an urban sociologist myself, so I would have nothing in common with architects, nor they with me. I do have a friend in engineering, who tells me that the construction courses in the architectural school are below par. I have heard, also (though this is mere hearsay, mind you), that the school is an expensive one to run, and that there is some feeling that it is a luxury which, in these days of inflation, the University can ill afford. However, I am of the old school myself and I feel that in these days of gross materialism a university should indulge itself occasionally with a few educational frivolities—

(Continued on page 156)

The "Last Word" in Motel Comfort . . .
with Heat and Hot Water by

KEWANEE
STEEL BOILERS

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DONN HOUGEN, Architect
3 Kewanee Boilers installed by
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Today's architecture truly and admirably "brings the outdoors in." And inevitably, too, foot traffic carries in some of that same "outdoors," to make life a bit tougher for any floor. The choice of enduring MFMA-graded Northern Hard Maple, in strip, block or pattern flooring, assures a floor that will grow old very slowly and gracefully. "There's always a new floor underneath" which will forever respond to simple refinishing, after millions of footsteps may have dimmed its original genial luster. Nature does not produce a finer floor material, nor has man's ingenuity ever outdone Nature in this respect.

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Arch. (13k-MA) for specifications data.

FLOOR WITH *NORTHERN* HARD MAPLE
BEECH AND BIRCH

out of school

(Continued from page 154)

not always just the necessities, if you know what I mean."

I did.

"Of course," my friend the urban sociologist went on to say, "A truly educated man is always interested in architecture. Every time I go to Europe I visit the Cathedrals and really the main reason most people travel is to see buildings, or scenery, or historic spots. I have a large collection of postal cards from my various trips abroad. Most of them are on architectural subjects and I have thought of willing them to the architectural school library, which I have heard (although this is just a rumor), refuses to catalogue its collection by the Dewey Decimal system—and the Librarian is being threated with excommunication by the joint chiefs of staff. Under the circumstances, I may will my postal cards to Harvard."

We had been walking for some time now, passing at a leisurely pace from quadrangle to quadrangle. Since the fronts and backs of buildings did not match, following the Yale tradition, I suppose, (where a Gothique facade has as its opposite, or rear, a Georgianne facade), the variety of effects was stimulating, if not pleasing. Turning to my companion, I asked, "Do you know whether or not the faculty of architecture designed the campus buildings?"

"Why, I don't believe so," said my friend in some surprise. "I don't think it would occur to anybody to ask them to."

We were now approaching an undistinguished and drab structure with three-story limestone, fluted pilasters flanking an entrance much too small for this frame. Before this grandiloquent decalcomania we paused to say good-bye.

"I can always recognize the School of Architecture at night; its lights are on later than in any other building. Sometimes I wonder why." And with these remarks we parted our ways.

●

Seated later in the Dean's office, I mentioned my recent experience. He put his pipe in the bulging pocket of his tweed jacket and looked at me sternly.

"I would not dream," said he, "of risking the political future of the school by permitting my faculty to work on the design of university buildings. There are two dangers; first that we might get into a stylistic debate on the campus, and the second that the students might question the competencies of the faculty. The perils are much too great. We rely on our reputation. Best to leave well enough alone.

"Of course, it is regrettable, to some extent, that we are not better known on the campus. I can assure you that were anyone from any other college of the university to visit us he would receive a cordial welcome. Our main problem, of course, is time. We are just too busy to curry friendships, which would mean very little to us. Besides, looking at it from

(Continued on page 158)

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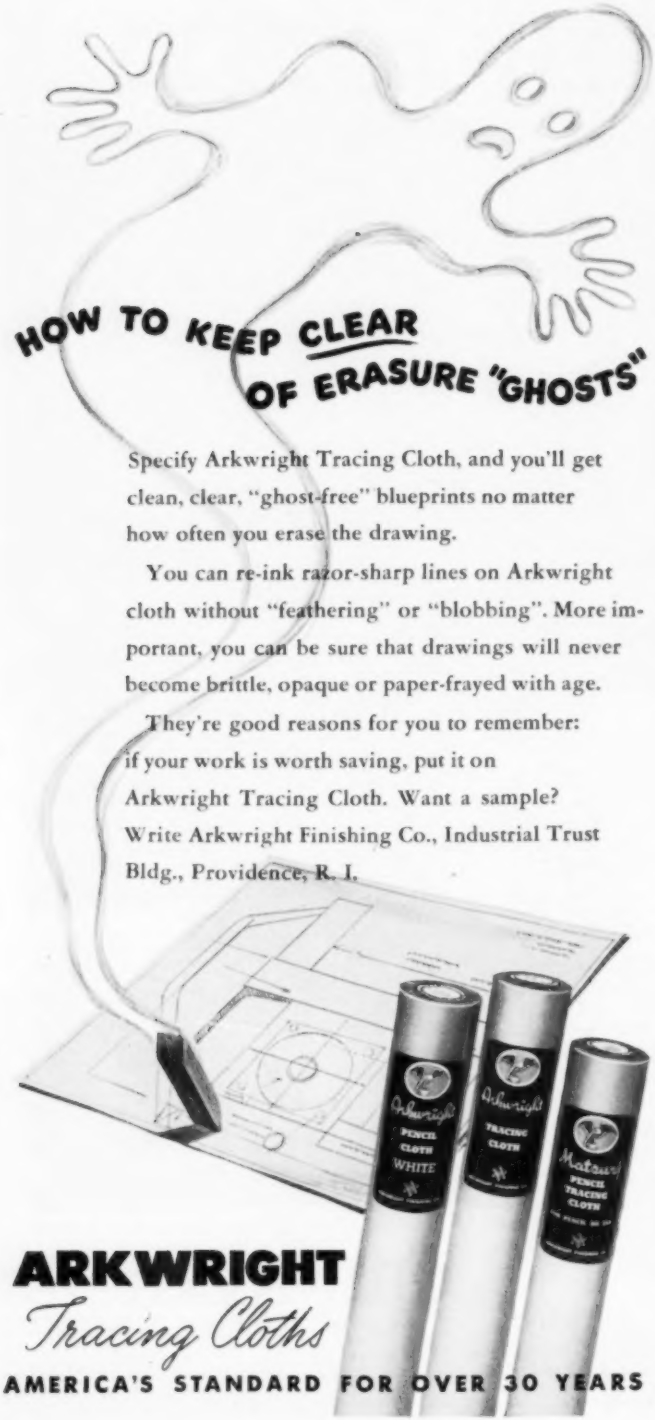
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it's the law

(Continued from page 156)

the vantage of the student, what conceivable benefit would such contacts be to him?

"After all, the architectural school can be considered as an exclusive club. We are training professionals. Now, if our men were going out into the world to earn a living as an objective, it might be different. But primarily they are designers in a profession of a high degree of specialty. It is impossible that our men, with all the charettes and everything, should fritter away useful time trying to give the university the benefit of their experience, training, and character. Yes, I use the word 'character' advisedly, as our men are, of course, of a higher type than is to be found anywhere else on the campus."

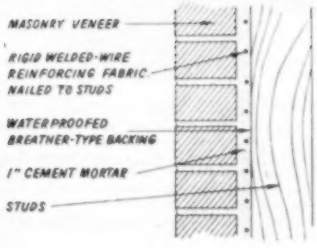
The Dean paused and looked sentimentally at a handsome photograph of Chartres on the wall. I found my gaze wandering around the office. The furniture was adequately contemporary to satisfy the demands of the students, without disturbing the more conservative alumni. The atmosphere of decorum, proper to a Dean's dignity, was disturbed only by the tweed coat. It should at least have been a pin-stripe blue serge.

I asked, "Haven't I heard that there is an excellent English faculty on the campus. Does it serve your school?"

"Oh, no!" cried the Dean, letting his gaze wander to another fine picture, this time of Falling Water. "We have our own English courses, exclusively for architects. After all, our boys do not need to read too much. They are designers. They should be able to read gift copies of "Mont St. Michel and Chartres" by Henry Adams and OUT OF SCHOOL in P/A, but beyond these they should not be expected to go. An architect, it is true, should be a liberal intellectual. He should know when to enjoy art, music, and literature. But, because of the many exacting tasks confronting the profession, I believe that it is the duty of a school to teach its students the maximum amount of culture necessary for this particular profession to retain its reputation. To develop an intellectual curiosity beyond these limits would be indicative of overbreeding."

The Dean leaned back in his chair, his finger tips together, and staring through the tops of the elm trees at the tall ivory towers of Theleme, added, "We tolerate this university as a necessary adjunct to the School of Architecture. My task, to which I have devoted many years, has been to see that at no time does the university intrude on our activities. I modestly pride myself on the complete success of this undertaking."

I could not argue the point.



Note from the drawing above and the photo below how Steeltex bonds a veneer wall together as a strong single unit and eliminates the need for standard sheathing.

500 Families Get Added Fire Protection with Steeltex for Masonry Veneer

One very good reason for specifying *Steeltex for Masonry Veneer* on the extensive row-type Oglethorpe Apartments in Atlanta, Georgia was the added fire protection it offered, according to James C. Wise, architect for the development. Said architect Wise, "A highly fire-resistant wall was achieved by the solid, steel-reinforced, mortar slab.

"Another excellent reason," said Mr. Wise, "lies in the fact that Steeltex rigidly ties the brick veneer and frame together for mutual protection against later settling and distortion. In the Oglethorpe Apartments, I have noted that there has been no plaster cracking or breakaway."

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the illustrations

All illustrations from Gruen and Smith offices, with exception of those listed below.

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Nuremberg Market Place, 1599. Courtesy: *Metropolitan Opera Guild.*

Page 68 & 69

Agora of Assos. *N.Y.P.L. Picture Collection.*

Page 69

Great Cloth-Market, Leeds. *N.Y.P.L. Picture Collection.*

Page 70

Northgate Shopping Center, Seattle, Wash. Photos: *Martin Meyer. (through owners).*

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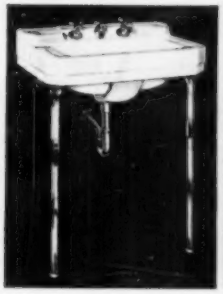
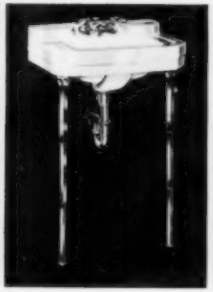


WILLARD *850. Front Overflow, anti-splash rim, slanted control panel. 22"x18" and 24"x20".



COSMETTE *940. Square basin lavatory with control panel recessed in shelf. 20" x 14½" and 24" x 17½".

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Page 75

Richards Market, Newport Beach, Calif. Photo: *Neal S. Bechner.*

Town & Country Center, Palm Springs, Calif. Photo: *Julius Shulman.*

Bullock's Pasadena, Pasadena, Calif. Photo: *Julius Shulman.*

Page 76

Baldwin Hills Shopping Center, Los Angeles, Calif. Photo: *Julius Shulman. Same as above.*

Page 77

Bellevue Shopping Center, Bellevue, Wash. Photo: *Dearborn-Massar.*

Community Shops, Greenhills, Ohio. Photo: *U. S. Resettlement Administration.*

Page 78

Halle Brothers Store, Cleveland, Ohio. Photo: *R. Marvin Wilson.*

Bullock's Pasadena, Pasadena, Calif. Photo: *Julius Shulman.*

Page 86

Pavement market, Mexico City, D. F. Photo: *Wide World Photos, Inc.*

Page 87

(Belmont Race Track) Parking. Photo: *Wide World Photos, Inc.*

Page 89

Hecht's Parking Garage, Arlington, Va. Photo: *Robert C. Lautman.*

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Lakewood Center, Long Beach, Calif. Photo: *William A. Garnett. (through owners).*

Aerial view of Northgate Center, Seattle, Wash. Photo: *Martin Meyer. (through owners).*

Northgate Center (Bon Marche), Seattle, Wash. *(through owners—no photo credit).*

Lakewood Center—May Company building. *(through owners—no photo credit).*

Page 93

North Shore Mart, Great Neck, N. Y. Photo: *J. Alex Langley. (through publicity firm).*

Bellevue Shopping Center, Bellevue, Wash. Photo: *Dearborn-Massar.*

Page 94

The Shoppers' World, Framingham, Mass. Aerial view. Photo: *Fay Foto Service, Inc.*

The Shoppers' World, Framingham, Mass. Photo: *Kenneth C. Welch.*

The Shoppers' World, Framingham, Mass. Photo: *Fay Foto Service, Inc.*

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Co-op Market, Palo Alto, Calif. Photo: *Rondal Partridge.*

Tarzana California Shopping Center. Photo: *Joe Paul.*

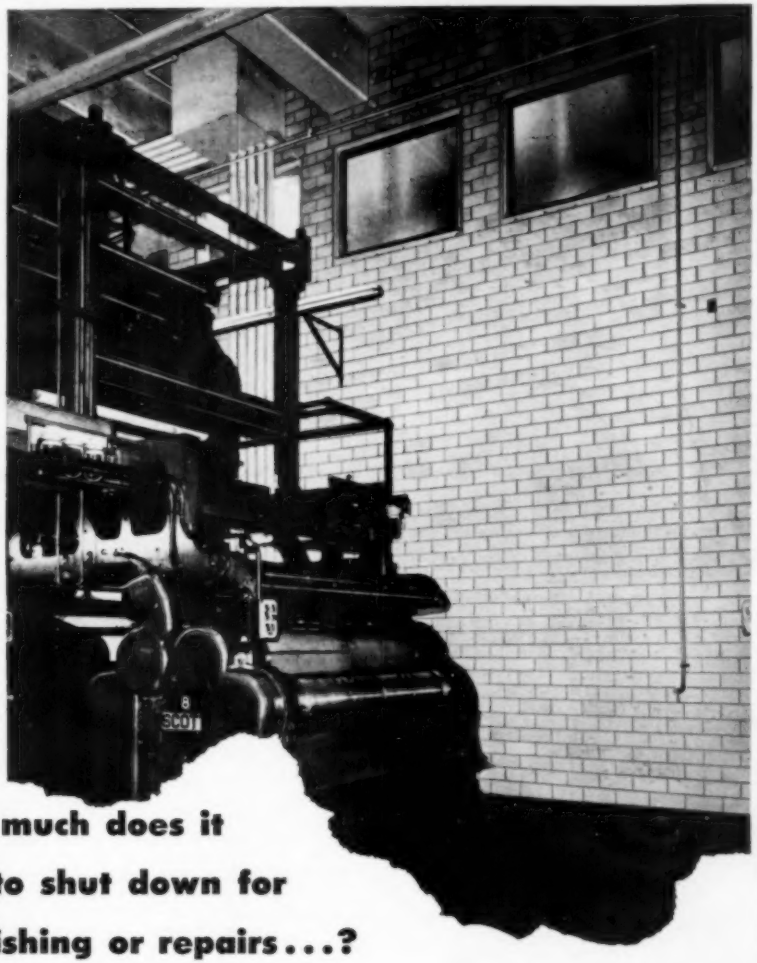
Page 99

Construction photograph of Jordan Marsh dome, Framingham, Mass. Photo: *Dunhill Studios.*

Page 101

Beverly Robinson, Beverly Hills, Calif. Photos: *Modernage.*

Christmas Tree, Northgate. Photo: *no credit (through owners).*



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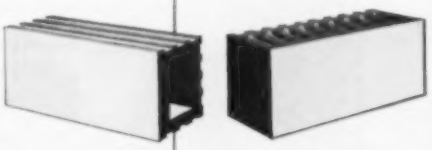

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it's the law

by Bernard Tomson

This column has previously discussed zoning law as it applied to esthetics and related matters. (May 1950 P/A—Extent to which a municipality may limit the minimum area upon which a dwelling may be constructed; November 1950 P/A—Extent to which a municipality may restrict construction of homes that "look alike"; December 1950 P/A—Extent to which a municipality may restrict area for construction of one-family homes). The tendency has been to incorporate in a building or zoning ordinance a rigid set of rules intended to be applicable to all building projects. Lately, an interesting variation has begun to appear. Under these zoning laws a commission, or similar body, has been set up to determine, among other things, the esthetics of a building project at the time the building project is contemplated.

An excellent example of this device is found in New York City, where the pressure of finding industrial sites has directed some companies into residential areas. An additional advantage in such a site stems from the fact that a project in such an area has immediately available a ready pool of labor. The difficulties inherent in placing an industrial plant in a residential area are readily apparent. How New York City solved this problem is intriguing.

esthetic zoning

part 1: industrial

In 1943, New York City adopted a zoning resolution permitting the erection of certain types of industrial plants in residential areas. Art. 2, Sec. 3 (10) of the resolution provided for the submission to the New York City Planning Commission of a site plan, and general building plans showing design, location, uses, structures and open spaces of project. The resolution listed the type of project permitted (administrative offices and industrial laboratory projects), and restricted the size of plots, the height of buildings, the distance between buildings and required conformity to all applicable laws and regulations relating to construction, operation and maintenance.* The

(Continued on page 144)

*"*Landscaped administrative offices and industrial laboratory projects, consistent with and designed to promote and benefit the value and use of property in residence districts or in areas which are predominantly residential although partly lying in less restricted districts. Such use may be permitted only if approved in accordance with the following terms and conditions:*

"(a) Every project authorized under this subsection (10) shall occupy a plot of not less than ten acres, of which not more than 25 percent shall be occupied by buildings and structures and not less than 25 percent shall consist of a landscaped park area to which the public shall have access subject to reasonable restrictions. The aggregate floor area of the buildings and structures shall not exceed one-half of the area of the plot.

"The minimum distance between any two buildings or structures shall be not less than 20 feet. All buildings and structures shall be erected and arranged in a manner which will provide adequate light and air at least equivalent to the requirements of this resolution. The height of any building or structure shall not exceed 50 feet, and within such limits shall be that best suited to the architectural design and arrangement of all the buildings, notwithstanding the provisions of Article III of this resolution. The location and design of all buildings and

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100% GOLD BOND GYPSUM LATH. Bill Baker (left) of Cox & Baker and Robert Dickson (center) Robert Dickson Lathing Co., watch as Gold Bond Gypsum Lath and Stripite are applied in a Cox & Baker Colonial Farms home.

100% GOLD BOND PLASTER AND LIME. Frank L. DeGrendel (second from left), DeGrendel Fuel and Supply Co. and National Gypsum Company representatives look on as Kaye and John Bruggeman (right), Bruggeman Bros. plaster one of Cox & Baker's Colonial Farms houses with Gold Bond Plaster.

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it's the law

(Continued from page 162)

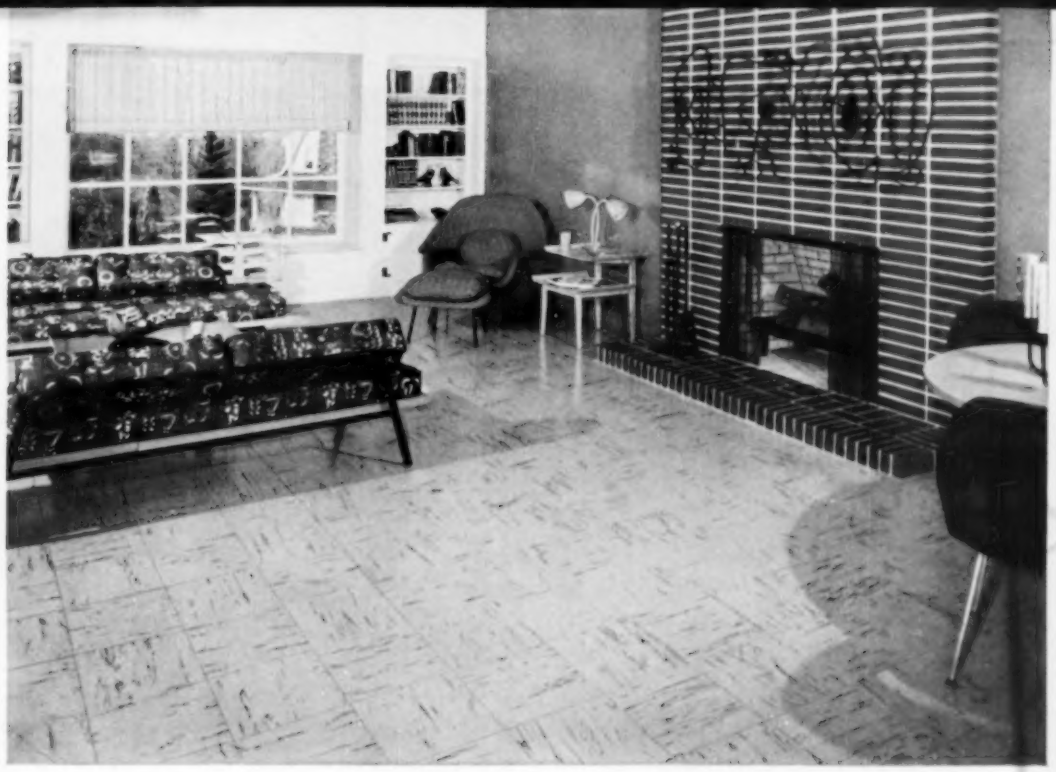
City Planning Commission was then to consider the merits of each contemplated project individually in the light of promoting and benefiting the use and value of property in the area.

Only one concern took advantage of this resolution. In August of 1943, *Sylvania Electric Products, Inc.* of New York made an application for the erection of a research, developmental, and administrative center in a residential zone. The project presented by *Sylvania* comprehended the initial utilization of two buildings then occupying the site in Little Neck, Queens, and the subsequent erection of five administration and industrial laboratory buildings, a garage, and club house. The site contained 28.5 acres, of which seven acres was set aside as a park area for use by the general public. The total floor area of the entire project was 429,104 square feet, or 35 percent of the net area of the site. The plan further provided for parking areas (approximately 500 cars) and for landscaping and developing of the entire area so as to create "a pleasing appearance to the community, an attractive setting for the buildings and a general atmosphere of a high-grade technical institute . . . The architecture will be a modified Georgian style depending upon project wings and ells and varying roof treatment to break up otherwise long building masses. Modified

(Continued on page 168)

structures on the plot shall be consistent with the predominantly residential character of the district. The uses provided for in this subsection (10) shall in no instance include the trades, industries and uses proscribed by section 4(a) and 4(b) of this resolution.

"(b) Upon presentation to the City Planning Commission of a site plan and general building plans showing the design, location and uses of buildings, structures and open spaces of a project within a residence district or in an area predominantly residential although partly lying in less restricted districts, the commission may, after public notice and hearing, and subject to appropriate conditions and safeguards, by resolution certify that the construction, operation and maintenance of such a project is consistent with the use of property in such district or districts and is designed to promote, enhance and benefit the value and use of such property and may, thereupon, approve such plan of a project. Such resolution of the City Planning Commission, together with the plan of a project shall be filed with the Secretary of the Board of Estimate within five (5) days after its adoption. Unless the Board of Estimate shall disapprove such resolution by a majority vote within thirty (30) days from the date of filing, it shall thereupon take



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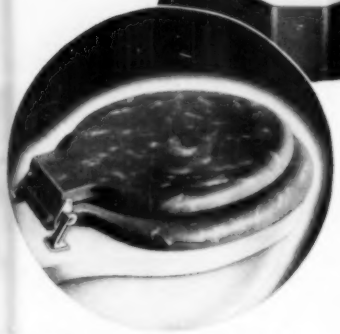

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it's the law

(Continued from page 164)

classic entrance porticoes and varying treatment of the fenestration together with low connecting colonnades and arcades will create an intimate college campus effect, suitable to a highly restricted residential neighborhood."

The project was to contain complete facilities for research and development in lighting, communication and electronics, as well as general administration and sales offices for the concern. Manufacturing was strictly limited and the ultimate number of employees upon completion of the project was not to exceed 2000. The City Planning Commission, after considering the merits of this application by Sylvania, by resolution dated September 22, 1943, approved the contemplated project.

●

It will be noted that the original resolution made no provision for the erection of any type of manufacturing plant. In 1950 this was remedied by the insertion of the words "and light Industrial Plants" into Art. 2, Sec. 3(10), which dealt with the types of projects which might be erected. In November of 1950, under the then amended resolution, *The Bulova Watch Company, Inc.*, filed an application for the erection of a light industrial plant in a residential area.

The *Bulova* project, in Jackson Heights, Queens, was prepared with the problem of esthetics kept foremost in mind. The application provided for the erection of a three-story building on a site area of approximately 24 acres, a plot coverage of 15%. Six acres were reserved for landscaped park area, for public use. The floor area of the building was to be 390,000 square feet. There were also provisions for a parking area to accommodate not less than 500 cars. The entire area, including the plant building, interior roadways and walks, park areas and automobile parking

(Continued on page 170)

effect, except that in case a protest against a proposed resolution shall have theretofore been presented, duly signed and acknowledged by the owners of 20 percent or more of the area of the land immediately adjacent extending 100 feet from said plot, or by the owners of 20 percent or more of the area of land directly opposite thereto extending 100 feet from the street frontage of such opposite land, such resolution shall not be effective unless approved by the Board of Estimate by unanimous vote of the entire Board.

"(c) All buildings and structures authorized and established under the provisions of this subsection (10) shall conform to all applicable laws and regulations relating to construction, operation and maintenance.

"(d) No modification, variance or change in the general location, layout and character of the project as shown on the plan as approved shall be permitted except when approved in accordance with the procedure set forth in subdivision (b) of this subsection (10), provided that upon abandonment of a particular project authorized under this subsection (10) the land and the structures thereon may be used without such approval for any other lawful purpose permissible within the district or districts in which the project is located."

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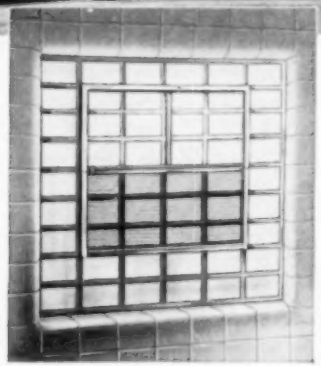

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New Bayley SAF-T-GARD Window
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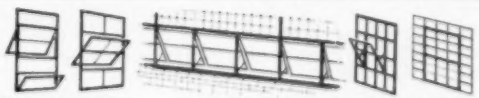
To be known for a fine quality product is only the *first* essential. Much more is required from a truly satisfactory relationship. Full understanding of this fact is the foundation of Bayley's policy—and why Bayley has been so widely preferred for so many years by discriminating Building Designers.

Bayley's endeavor to better serve through all the building stages—from recognition of need to building occupancy—is further exemplified in the new Bayley Saf-T-Gard Window. This window is the result of Bayley's close collaboration with Doctors and officials of mental institutions. Not only does it efficiently meet the demands of modern mental hospitals but it also incorporates construction features made possible by Bayley's years of specialized window experience.

Regardless of window requirements, you too will find extra values *in discussing your needs with Bayley. Write or phone.*

See Bayley in Sweet's. Complete catalogs on Aluminum Windows, 17a/BA; Steel Windows, 17b/BAL; SAF-T-GARD Hospital Detention Window, 17b/BAY.



PROJECTED PIVOTED AirVUE GUARD SAF-T-GARD

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District Sales Offices:

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it's the law

(Continued from page 168)

area was to be landscaped, developed and maintained, "in such a way as to create a suitable and attractive appearance." The application further stated that the three-story building would be used as central headquarters and plant for Bulova Watch Company. More specifically the activities would include administration and sales officers, advertising, personnel administration, product research and development, general engineering, quality control and metallurgic development, production of watch parts, assembly of watch movements, shipping, and the production of tools and dies for watch parts manufacturing. This light manufacturing would be permitted under the amended resolution. It was also estimated that the number of employees to be accommodated on this project would not exceed 2000. There were also provisions for the building of the new streets, the widening of existing streets, and the deeding of these to the city.

The City Planning Commission, in its resolution approving the Bulova application, on December 27, 1950, stated:

"The Commission was impressed by the Community Campus plan, but the effectuation of any such plan is not practical at this time because of the numerous interests and agencies involved. It is obvious that the proposed plan would require expenditures far in excess of sums now available for such purposes. However, development of the Bulova project would not preclude the subsequent use of other land in the vicinity for public purposes. It would appear that the Bulova project could be integrated with a larger community plan without adversely affecting the over-all objectives of the latter. The Commission is hopeful that, so far as practical, schools, parks and other needed facilities in this area may be provided in conformity with such an integrated plan."

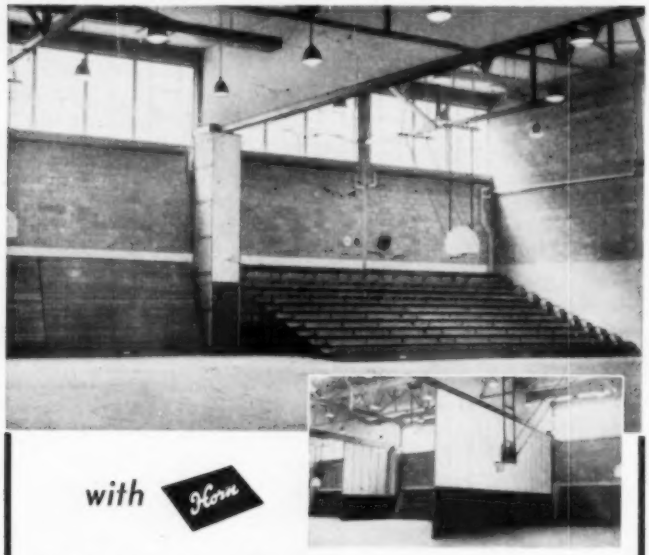
●

The results of these two projects alone may be listed as follows:

1. New York City gathered increased revenues by their real estate tax on the greater assessed valuation of these two large projects, as opposed to lower assessed residences.
2. Employment was provided for residents of neighboring communities close to their homes.
3. The City was given a large area for public parks—the Bulova site provides playgrounds, swimming pool, comfort station, baseball, basketball and football fields available to the public.

(To be continued)

flexible GYMNASIUM PLANNING



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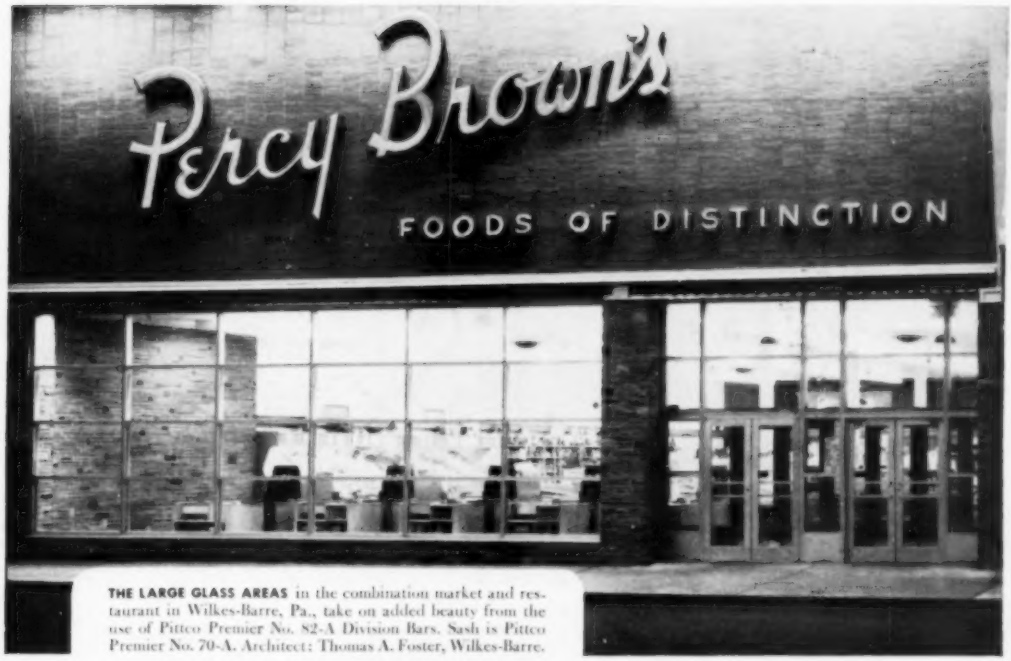
VIEWS

(Continued from page 99)

examinations, appreciate the fact that serious shortcomings were thereby made apparent to them. Architectural teachers listen to the sad tales of their students and are sure that the examinations are at fault, rather than their own teaching. Practicing architects, having been

(Continued on page 172)



THE LARGE GLASS AREAS in the combination market and restaurant in Wilkes-Barre, Pa., take on added beauty from the use of Pittco Premier No. 82-A Division Bars. Sash is Pittco Premier No. 70-A. Architect: Thomas A. Foster, Wilkes-Barre.

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(A) Pittco Division Bar No. 82-A (also available without steel reinforcing tube). (B) Pittco Muntin Bar No. 32. (C) Pittco Division Bar No. 28.

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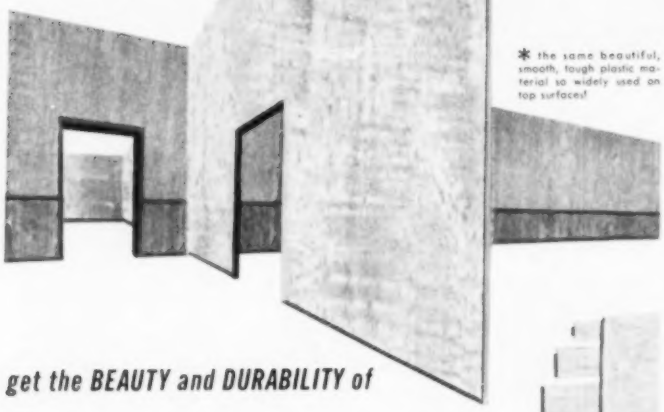

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VIEWS

(Continued from page 170)

registered, often give little thought to the problem until they need registration in another state. What is needed is continuous activity on the part of every architect to the end that registration procedures will be improved, that registration laws will be strengthened and not weakened, and that such laws be enforced.

An encouraging sign has been the increased number of architects who are not members of registration boards, who have attended meetings of the N.C.A.R.B. Possibly a seminar on registration should have a place on the A.I.A. convention program.

In general, I agree heartily with Tomson. Among the flaws in the new Georgia law are (1) requiring only one member of an architectural firm to qualify, (2) providing for the acceptance of "a diploma . . . from an architectural . . . school . . . in lieu of the examination," and (3) no specific provision for enforcement.

C. H. COWGILL, Head
Department of Architecture
Virginia Polytechnic Institute

exceedingly timely

Dear Editor: I have read the article very carefully and feel that it is exceedingly timely; the stature of the profession would be materially raised if registration laws were uniform throughout the country.

IRVING G. SMITH, Director
Northwest District, A.I.A.
Portland, Ore.

the intelligent way

Dear Editor: Only a short time ago architects seemed to focus indifference, individualism, independence and pure cussedness on every suggestion at group effort for group advantage, but lately I am greatly encouraged as I watch various architectural groups at work and note the fruits of their labor.

They stood off bureaucracy in Maryland last year, in Virginia this year. They are about to win a national battle on fees with the armed services, long-drawn though the engagement has been. They even begin to impinge on PHA with NAHO to appreciate us. Small signs are stirring of some research matters beginning to take form. All these items are of unsurpassed public relations value. As architects learn to respect and guard their high

(Continued on page 174)

HIGH QUALITY SCHOOLS

for 65 to 75% of prevailing area costs...

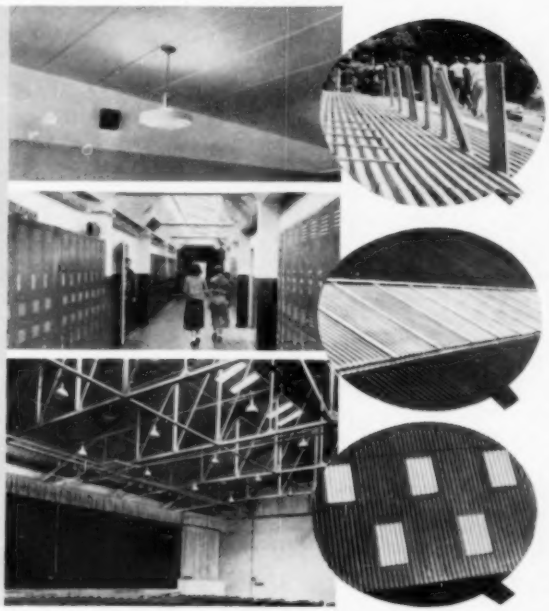
Gregson & Ellis schools do not skimp to achieve low cost. They have the de luxe features—finest lighting, ventilation, P. A. system and such equipment—that earmark today's best schools. The economy derives from the architects' ingenuity in organizing the job; in using materials functionally without disguise, and from their intelligent approach to design and budget problems. The other source of Gregson & Ellis' low cost is the economy inherent in Robertson materials. Contractor for this job was the Central Construction Co., of Atlanta, Georgia.

Complete figures, including costs, on these and similar schools are available for the asking

Also catalogs on Roof Deck, Skylights and Galbestos

showing how the materials can be used to reduce over-all weight and construction time.

Write to



ROBERTSON STEEL ROOF DECK

forms a flat, attractive ceiling requiring only a paint finish. By sloping, the ceiling has good acoustical qualities. On the Roof Deck is 2" of insulation and a twenty-year bonded built-up roofing. The insert shows one detail of efficient job organization—workmen placing insulation and waterproofing on roof. The long-span deck is welded to steel members imbedded in the masonry walls.

ROBERTSON CORRUGATED WIRE GLASS SKYLIGHTS,

used to daylight corridors, are a feature of all Gregson & Ellis schools. This scene is in the Jim Cherry School, Brookhaven, Ga., pictured above. This school with 16 classrooms, auditorium-dining hall, kitchen, offices, auxiliary rooms, public address system and other modern equipment was completed for $6.25 per sq. ft.

16 ROBERTSON SHEETLITES,

set in a GALBESTOS roof, light this clean-cut auditorium. The structure is made entirely from noncombustible materials. This school at Manchester, Ga., has 27 classrooms, 3 offices, storage, toilet rooms and the 116' x 111' gymnasium-auditorium. It was built for $4.60 per sq. ft. The $217,000 total was $3,000 less than the budget.

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VIEWS

(Continued from page 172)

professional values they will gain, and deserve, more public appreciation. May lessons hard learned stay with us.

Bernard Tomson strikes at the heart of our professional troubles in seeking to develop, common to all states, the public values inherent in adequate registration laws. I hope his article stirs a real urgency among architects everywhere to demand a united front through national A.I.A. guidance, and to work unceasingly to bring this about. Its accomplishment would be the finest public relations gesture the profession could ever hope to make. It is the intelligent way to a public appreciation of the architect's community contribution.

More power to Bernard Tomson and his plea for adequate registration laws common to all states.

C. E. SILLING, Director
Middle Atlantic District, A.I.A.
Charleston, W. Va.

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Lincoln High School
East St. Louis, Illinois
Contractor: Ford Ganschinietz
Architect: S. T. Pabst

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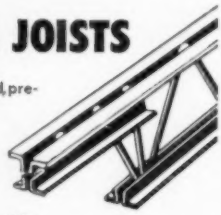

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more than a law

Dear Editor: It is certainly time to attempt to get some reasonable uniformity in registration legislation. However, more than a "strong" law is needed. The whole examination procedure in states with strong laws and a required "internship" period needs re-examination.

Among the questions that should be raised are:

1. The reasonableness of the requirement of three years of experience in New York and some other states before any part of the examination may be attempted. The experience period is completely without control by any professional or public agency.

2. The justification for examining in such subjects as the history of architecture. No one has yet convinced me that a knowledge of who designed what building in 16th Century Italy has any reasonable relationship to the promotion of the public health, safety, morals, or general welfare in 20th Century America.

3. The examination in design, as given in some states, lends itself to subjective evaluation on the part of the examining board. The end result can be that the design judgment criteria have little to do with the protection of persons and property.

THOMAS W. MACKESEY, Dean
College of Architecture
Cornell University

agrees wholeheartedly

Dear Editor: My comments relative to what Tomson has to say are: I agree wholeheartedly with his premise that some uniform licensing law should be advocated for the entire U. S. You are probably aware that the Institute's Special Committee for Surveying Architectural Education and Registration, has one entire section of their report devoted to registration.

(Continued on page 176)

3 Reasons why...

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VIEWS

(Continued from page 174)

Having attended but one of the many sessions of this commission, I am, however, aware that the members recognize the worth of a uniform licensing law; but also realize that states' rights and many local conditions, together with local interests are working against such over-all simplification.

I am also very familiar with many cases and problems that come before the Board of Directors of the Institute relative to our inadequate licensing laws. The fact that all 48 states now have laws means a step in the right direction, but a step which will have to be supplemented over the years to get the proper teeth incorporated, as was only recently done in the state of Georgia. Even when such a good act is put into force, there are always groups or individuals making an effort to weaken its purpose, as is the case in Tennessee at the moment.

To be very practical about the whole matter, I feel that all groups with the interest of the profession at heart, including our Board of Directors, should keep up a constant pressure within the states and nationally to consummate some sort of a uniform registration law. This will take time but it is none too soon to initiate a pressure of this type.

The futility of working with local legislative groups, who usually are satisfying local interests and pressures, has been the chief stumbling block in the past, but by the proper public relations, with emphasis placed on the safety, health and welfare of the public, more than on the resulting interests of the architectural profession, would ultimately bring about such a progressive and all-inclusive registration law.

I have heard Bernard Tomson speak before Institute groups and I compliment you both on the excellent job he does.

KENNETH E. WISCHMEYER
First Vice President, A.I.A.
St. Louis, Mo.

national pattern wanted

Dear Editor: I am wondering if you and Tomson are aware of the activities of the National Council of Architectural Registration Boards. This organization now has under study the unification of state registration laws. They meet each year during the A.I.A. Convention and will meet this year in New York, Sunday and Monday prior to the Convention. I understand the committee is working and will probably report on their activities along the line of Tomson's suggestions.

There is no question but what there is a need for some unification. I find in my visits to various chapters in my region that it is one of the topics most discussed with emphasis on a hope that some national standard could be set up for use in securing local legislation which would be strengthened by a national pattern. I also find that there is a hesitancy on the part of state groups to ask their respective legislatures to make drastic changes

(Continued on page 178)

a GOOD POINT to remember . . .

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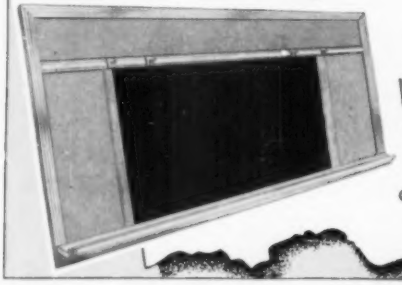

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RIXSON Closers are controlling the closing action of
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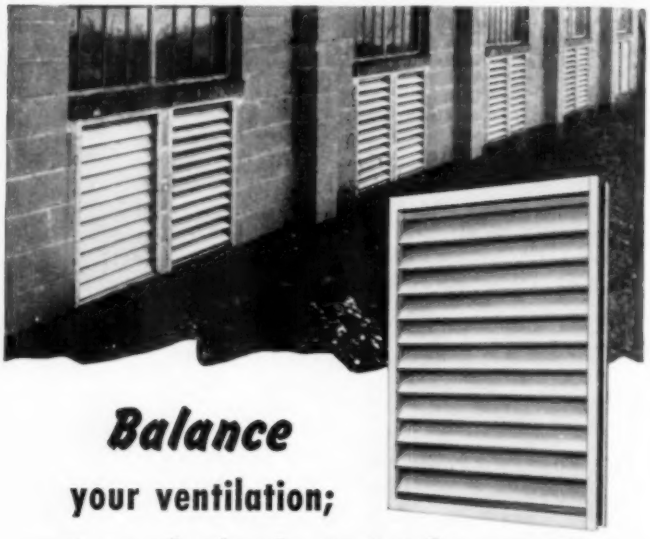
VIEWS

(Continued from page 176)

in their registration laws because of the fear that they may end with legislative opposition that might result in damage to their existing registration laws. This feeling has been a most deterrent factor in overcoming the inadequacies of existing state registration acts. Therefore, they feel that some national pattern would be of great benefit in selling the respective state lawmakers.

HOWARD EICHENBAUM, Director
Gulf States District, A.I.A.
Little Rock, Ark.



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appeasement chant

Dear Editor: My office has just delivered complete Contract Documents to the Public Housing Administration for three Housing Projects in Fresno County, and, being an interested witness to all the strenuous effort at satisfying the well known host of requirements, my wife has recapitulated in rhyme her impression of the operation, which is enclosed.

I thought it might strike a responsive chord in some of the readers of your good magazine.

JOHN P. MILLER
Architect
Fresno, Calif.

public housing

So much confusion in the air
Little men run now here now there
Catching plurals, commas, quotes,
  Thrashing windmills, nanny goats.
When at last the dust will settle,
Tempers calmed and eyes half shut 'till
Slowly they become aware
Of something growing over there . . .
A spreading out—a pushing higher
And here and there a rubbish fire,
By light of which one just makes out
The flow of living space throughout
Soon to be filled with living things,
Flowers, trees, a bird that sings.
People too will soon rush in
With crates and boxes, children,—gin,
Leaving dirt and dark behind
For fresh paint, sun, venetian blind.

For this, dear sirs, is what evolves
From taxes, red tape, dedication
Of Housing Projects across the nation.

L. M.

the guest speaks

Dear Editor: Having designed a half dozen resort hotels in the last three years, I read with avid interest the section devoted to INTERIOR DESIGN DATA which concerns itself with resort hotel rooms (April 1952 P/A). Since I spent some time in the Caribe Hilton and hotels similar to El Panama, I was most interested in seeing what was said about both of these hotels. Never having learned the gentle art of polite criticism, I am afraid that what I have to say will seem like rather bald, bold statements. I intend no criticism of the architects and their views, but I do feel that something should be said about this subject lest other architects absorb everything in this section as gospel truth. Paraphrasing the soul-wrenching outcry of Hamlet, I cannot help but

(Continued on page 180)

This office was planned for livability–not limitation

● Future expansion plans of this small but progressive company call for these executive offices to be a part of the production floor. And when that time arrives—next year or five years from now—these offices *including the walls* will be moved and re-erected in a new location without muss, fuss or even one day of lost time.

With modern Hauserman *Movable* Interiors, thousands of American businesses—commercial, industrial and institutional—are experiencing this same freedom from limitation . . . *permanent livability* despite changing floor space requirements.

Although present demand for Hauserman *Movable* Interiors is the greatest in our almost 40-year history, recent expansion of production facilities makes it possible to meet delivery schedules with earlier *on-time* erection by Hauserman's own nation-wide service organization.

Now, before you remodel or expand, is the time to plan for the many space-saving, time-saving, money-saving advantages of Hauserman *Movable* Interiors. Your nearby Hauserman Representative will gladly furnish you with complete information . . . or write today to The E. F. Hauserman Company, 7218 Grant Avenue, Cleveland 5, Ohio.

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Korweld®—the non-metallic panel construction which combines the best features of all types of interior partitions—is an exclusive Hauserman development. Ask your Hauserman Representative for facts about this revolutionary new product.

®Trademark

Photo shows Food Fair Market in Philadelphia. Architect: Louis Kasoff. Terrazzo contractor: United Marble Co. Both of Philadelphia.

beautiful terrazzo

An aristocrat that works in supermarkets

Does a Terrazzo floor in a supermarket surprise you? It shouldn't, because not only is Terrazzo beautiful, but also its low annual cost prompts the choice.

The designer reasoned: heavy foot-traffic grinds the life and beauty out of most market floors. Terrazzo floors are known for long service life. They require virtually no maintenance and are easy to clean. What's more, Terrazzo stays beautiful throughout its long, long life. All this made "dollars and sense" to management . . . and also made Food Fair Market floors, such as the one above, an important part of their attractive interiors.

Terrazzo offers the architect a spectrum of color, unlimited design possibilities. Made with a true white cement, like Atlas White, any desired color and shading can be produced. In short, Terrazzo gives *practical* beauty for commercial-building floors or any other.

For more information see SWEET'S Catalog, Section 4g/Uni and 13f/Un, or write Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

PA-T-126B

FOR BEAUTY AND UTILITY

ATLAS WHITE CEMENT

FOR TERRAZZO, PAINT, SLABS, STUCCO

"THEATRE GUILD ON THE AIR" *Sponsored by U. S. Steel Subsidiaries*
Sunday Evenings—NBC Network

VIEWS

(Continued from page 178)

say of your report on "Resort Hotel Rooms"—"something is rotten in Denmark."

It is amazing to me to find in this one issue of P/A, an article by Mitzi Solomon in which she holds forth for such things as—"the fantastic—the need for the personality's thumbprint—the enigmatic symbol—and the delicious joke of the frankly fake." In short, this is a clarion call to bring back some of those things which appeal to the eye, the heart and the soul rather than to the coldly esthetic mind. On the other hand, I find Suzanne Sekey saying quite the opposite in her text on the Caribe Hilton, citing ". . . meticulous considerations of easy housekeeping and durability. Tables and cabinets have plastic tops to be impervious to burns and stains. Furniture supports are high off the floor to clear mops and brooms."

I do not see this as an argument between the sensitive classicist and the intellectual modernist. What I have to say is not the cry of the classicist, the yearning for the good old days. Although trained in the traditional school, my very first commission was executed in a groping, stumbling contemporary manner over 25 years ago. In all these years, I have never taken a commission in which the client insisted on the period styling. I can look back to publications in the architectural magazines of my work in the modern manner as long ago as 1928. Whatever may be said about my work, one thing cannot be gainsaid—that I have attempted in my own particular way to work in the contemporary idiom. But in all my work, I have always felt that I was designing for the average person and not for the steely-eyed, icy-minded intellectual. My shops and hotels are meant to appeal and to serve the average American. I have attempted to introduce color and interest and excitement which appeals to the eye and the heart. Whether I succeeded or not is another matter. I must cry out against accepting the hotel rooms as designed by Messrs. Warner-Leeds and Stone as those which have gained popular acceptance.

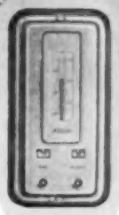
Without intending any offense, I should like to enumerate some of the things I have found which I think need to be spoken of. The meticulously designed rooms so easy on brushes, on mops, are not easy on people. During our stay at the Caribe Hilton, my wife, who happens to have a touch of claustrophobia, woke me one night in a state of extreme nervous upset.

(Continued on page 182)

BLOOMINGTON, MINNESOTA, ELEMENTARY SCHOOL

Another prominent
UNIT VENTILATOR CONTROL
installation by

POWERS



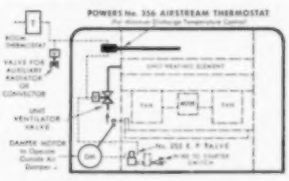
Architect: Eugene D. Corwin ● **Consulting Engineers:** Gausman & Moore
Heating Contractor: E. R. Johnson Plbg. & Heating Co. (all of St. Paul, Minn.)

Comfortable Classrooms under severe weather conditions are assured in Bloomington's modern school. No expense has been spared in giving children and teachers the best of heating and ventilating equipment for classrooms and gymnasium.

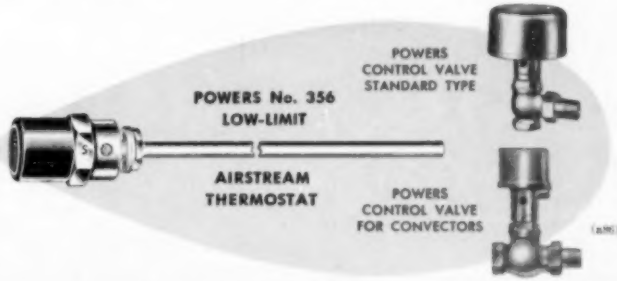
Greater Simplicity and dependable operation of Powers controls for Unit Ventilators in classrooms appeal especially to operating personnel.

Because of its superior design a Powers Low Limit Thermostat requires no auxiliary devices to supplement its accurate control of unit ventilator discharge temperature. Once set for the proper temperature it requires no readjustment—there are no fine restrictions to be serviced. Contact our nearest office for further information about its superior features. There's no obligation.

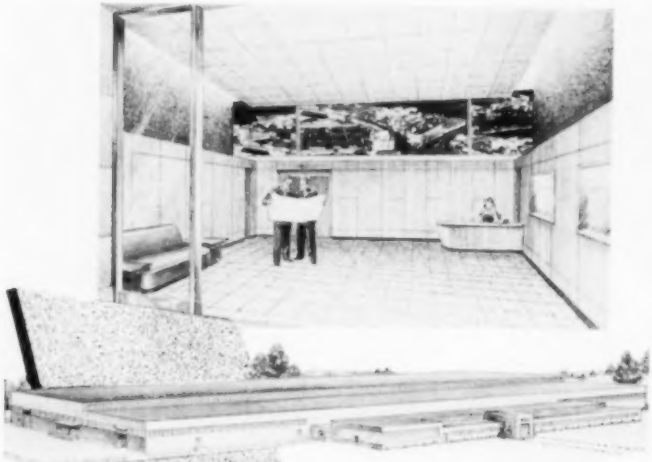
75 Powers Day-Night Thermostats here control 117 Diaphragm Valves in Unit Ventilators and Convectors.



Unit Ventilator Control by Powers



Established in 1891 • **THE POWERS REGULATOR COMPANY** • SKOKIE, ILL. • Offices in Over 50 Cities



Safety IS WELCOME HERE

. . . in this machine tool plant of the future

One of the largest single units for grinding machine manufacture is this 6½ acre Norton plant nearing completion. It embodies both the most modern machine tool design techniques and the last word in straight-line production methods. Practical consideration is given to the comfort and *safety* of employees and visitors. In the attractive lobby permanent protection against slipping is provided by wear-resistant Norton Non-slip Floor Tile. Terrazzo floors in kitchen and washrooms . . . wherever water, grease, etc. might be present . . . make use of other Norton non-slip floor products. For helpful information as to colors, types and suggested specifications write for catalog #1935-FAC.

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MAKING BETTER PRODUCTS TO MAKE OTHER PRODUCTS BETTER

NORTON

VIEWS

(Continued from page 180)

She felt that the room and the furnishings were closing in on her. To avert hysteria, we went out on the terrace while I reasoned with her to see why this sense of claustophobia had taken such complete control of her. She could not explain in particular, except that she felt she could not spend another night in that room. (The truth of the matter is that we checked out the next day.) After a few phenobarbitals, she finally dozed off, but I could sleep no more that night. Lying there in that efficient room, I too, began to get a vague sense of unrest. It was not claustrophobia. It was a feeling that here I was on a vacation in the tropics and my reaction was that I was being locked up in a hospital or a prison. Farfetched, you will say. Not lying on a sofa bed with a vista of efficient metal legs supporting functional modern furniture. Here were no soft lines—nothing that human emotion could find pleasure in. A sleepy mind in an environment like this immediately forms associations and if you will look carefully at the photographs of these rooms, as I have looked at the room itself, you may also understand the feeling that it is efficiency and meticulousness such as this, that the average person would associate with hospitals and public institutions. A lone reaction, you say. Oh, no! After this disquieting experience at the Caribe Hilton, I made it my business to interrogate people who had stayed there and 75% of the reaction was the same as mine. The rooms gave people a vague feeling of unrest and dissatisfaction and I know of one case where a couple checked out four o'clock in the morning because the woman refused to stay in the room any longer.

The sofa-bed or daybed arrangement is spoken of as "the coming thing" in hotels. I have attempted to introduce this type of furniture arrangement in the resort hotels I have done in Florida. And, in each case, most of these rooms have been furnished because the average guest prefers a bedroom arrangement. I have tried arguing with my clients, but one cannot argue against good business. In Florida, at any rate, a living-bedroom arrangement is a drug on the market. If I may indulge in personal tastes, I am getting tired of checking into a hotel that has this arrangement and deciding with my wife whether we would sleep head to head, feet to feet, head to feet, or what have you. I am old-fashioned

(Continued on page 188)

Designed for appearance, performance and a lifetime of trouble-free *operation.*

The beautiful, modern Drayton Arms Apartments, Savannah, Georgia
Architects: Cletus W. and W. P. Bergen, A.I.A., Savannah, Georgia

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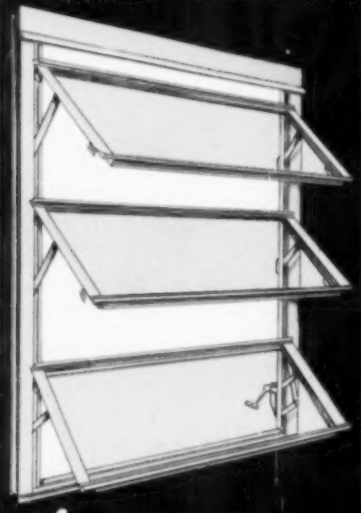
AUTOMATIC LOCKING
PATENTED

Aluminum
WINDOWS

COMBINE THE BEST FEATURES OF ALL WINDOW TYPES

Tightest closing window ever made!



THE FIRST WINDOW TO MAKE *Weather* TO ORDER

Auto-lok
AUTOMATIC LOCKING

Aluminum WINDOWS

SPECIFIED FOR THE *BIG* JOBS BY LEADING ARCHITECTS...

because AUTO-LOK is the *first* and *only* window made that successfully meets all window requirements *without a single compromise!* AUTO-LOK Windows are designed and manufactured to specifically answer the demands of architects for windows that lend themselves to *greater flexibility in the planning stage ...save time and costs in installation...give a lifetime of trouble-free service!*

LOW FIRST COST... LOWER MAINTENANCE

Their first cost compares favorably with competing products offering *fewer* advantages. They are time-proven...*you can't buy a better window at any price!* AUTO-LOK's simplified operation eliminates wearing parts...*no periodic adjustments are ever necessary*...gives you a window guaranteed to keep maintenance costs at a minimum.

FRESH AIR WHILE IT'S RAINING...no more running to close windows. Rain can't enter through slanting sash!

WARMER IN WINTER ...because it seals itself like a refrigerator... keeps heat in, cold out!

COOLER IN SUMMER ...because it opens widest...scoops air in and up...luxurious ventilation, but no drafts!

LUDMAN *Corporation*
BOX 4541, MIAMI, FLORIDA
Sales Offices in all Principal Cities

LUDMAN LEADS THE WORLD IN WINDOW ENGINEERING

PERFORMANCE FACTORS

of aluminum awning-type windows

Every day, more and more architects and contractors are turning toward aluminum awning-type windows. These newer, more modern windows are being specified for all types of construction, including factories, commercial buildings, apartments, hotels, schools, hospitals and homes. Over a period of years, the aluminum awning-type window has been subjected to rigid and exhaustive tests to determine its performance characteristics and operating efficiency under every known weather condition. This research has been carried on by the leading manufacturers in cooperation with leading architects.

the "open" window

One important advantage in favor of the aluminum awning-type window is that it can remain "open" to provide ventilation and fresh air circulation even when it is raining. Slanting sash is the answer. One aluminum awning-type window, the Ludman Auto-Lok, goes a step farther in this respect. The bottom sash of the Auto-Lok window is designed to remain slightly open, while the upper sash are closed tight and automatically locked. This feature allows for night ventilation and limited ventilation during inclement weather.

better ventilation...easier to clean

Because of their outward projection, the vents in aluminum awning windows provide maximum possibility of attaining 100% ventilation. While not all awning windows can be opened to nearly 90 degrees (almost straight out) the degree of their opening can be predetermined by checking the manufacturer's specifications. In their wide-open position awning-type windows can be cleaned from the inside. This very important maintenance factor cannot be underestimated. However, the basic design of the window must be checked. For, on certain of these types, where vents are pivoted on a fixed point, the top vent cannot be cleaned from the inside. The Ludman Auto-Lok window can be cleaned completely . . . all from the inside, top sash, too. This feature is accomplished by Ludman's uniquely designed operating hardware, in which the hinge points of the top sash float down with the mechanism when the window is opened to provide a convenient 6" opening between the top sash and the window frame.

air infiltration

Paradoxically, the use of aluminum awning windows has for many years been retarded because of their generally unsatisfactory performance on the score of tight closure and elimination of air infiltration. Yet, today, the tightest closing window ever made is an awning-type

window. This unit is Auto-Lok, developed by Ludman Corporation after many years of research. Its tight closing performance is made possible by its patented hardware, a self-locking device which automatically seals the window tight when closed. Auto-Lok hardware provides a closure ten times tighter than the popular established standards for casement windows and projected sash. Pittsburgh Testing Laboratory tests reveal that air infiltration through a standard, assembly line Auto-Lok window amounts to only 0.095 cubic feet per minute . . . a degree of weathertightness heretofore thought impossible in any window. Though the Auto-Lok locking action is exclusive with Ludman, other manufacturers are beginning to use a vinyl plastic weatherstripping material similar to that which Ludman uses to weatherstrip the Auto-Lok unit.

simple operation

The "one-hand" operation of aluminum awning-type windows is another feature that is very well accepted . . . and, in many instances, one of the important deciding factors in the selection of these windows. For example, this feature is important to hospitals, where busy nurses with a tray in one hand can still open or close the windows with their free hand . . . saving time and trouble.

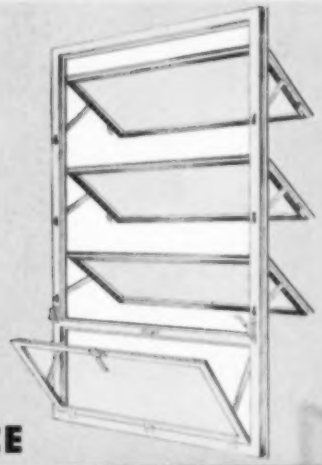
Each individual manufacturer utilizes a distinct type of operator to actuate the window operating hardware. Usually they have large gear boxes to generate the great amount of force required to actuate the torque bar window mechanism. Because of their size they extend over the face of the window sill into the room. Some have removable cranks and extension drives. A study of the operating hardware of all aluminum awning-type windows reveals the fact that Ludman, maker of the Auto-Lok Window, has the most efficient mechanism from the standpoint of easy operation and trouble-free service. The automatic, self-locking principle of the patented Auto-Lok operating device eliminates torque strain required to force the hinges in order to pull individual sash in tight against the frame. In fact, the Auto-Lok mechanism is so perfectly balanced and requires so little pressure that a child can operate the windows.

the ideal window for any installation... in any climate

The aluminum awning-type window is practical from every standpoint. Installations all over the world, in all climatic extremes, have proven their practicability. Their attractive horizontal lines make them entirely adaptable to all types of architectural design from cottage to skyscraper. Their rapidly growing acceptance is having a marked influence on architectural designs because their clean horizontal lines fit admirably into modern architectural styles.

Seals itself shut like a refrigerator

THE FIRST WINDOW TO *Answer* EVERY PERFORMANCE REQUIREMENT



Auto-lok AUTOMATIC LOCKING *Aluminum* **WINDOWS**

Read this check list for opening sash . . .

✓ AMOUNT AND QUALITY OF VENTILATION? *AUTO-LOK checks:* 100% ventilation, draft-free! Vents open almost 90°, entering air is scooped in and up.

✓ POSSIBILITY OF VENTILATION CONTROL? *AUTO-LOK checks:* You make your own weather! Perfect control in all positions from a slight crack of one vent to full opening of all vents.

✓ IS THE WINDOW EASILY OPERATED? *AUTO-LOK checks:* Friction-free, precision balanced "no wear" operation. Fingertip control with roto-type operator...no interference with screens, drapes or blinds. AUTO-LOK windows never stick.

✓ WEATHER PROTECTION WHEN WINDOW IS OPEN? *AUTO-LOK checks:* Awning-type design provides the luxury of healthful, refreshing ventilation even when it's raining.

✓ WEATHER-TIGHTNESS WHEN WINDOW IS CLOSED? *AUTO-LOK checks: AUTO-LOK is the tightest closing window ever made!* Closes many times tighter than any other window. Patented self-locking device plus elastomeric vinyl weatherstripping automatically seals window tight and isolates weather to a degree heretofore believed impossible.

✓ WHAT OBSTRUCTIONS TO VIEW (RAILS AND MUNTINS)? *AUTO-LOK checks:* Extremely narrow yet extra strong rails and muntins are made possible through the use of adeptly engineered extruded aluminum sections.

✓ FIRST COST? *AUTO-LOK checks:* Initial cost compares favorably with competing products providing many less advantages. You cannot buy better window performance at any price.

✓ MAINTENANCE COSTS? *AUTO-LOK checks:* Simplified operation eliminates wearing parts. No periodic adjustments necessary. Ludman engineering leadership combines the best in design, materials and workmanship to produce a window that will give no-wear operational ease with a minimum of maintenance.

✓ CAN ALL WINDOW GLASS BE CLEANED FROM INSIDE? *AUTO-LOK checks:* Window can be completely, comfortably and easily cleaned *entirely* from inside, including top vent, too. No gadgets to disengage.

✓ HOW DOES THE WINDOW FIT IN WITH PLANS FOR SCREENS, STORM SASH, BLINDS, ETC.? *AUTO-LOK checks:* Interchangeable *inside* screens and storm sash can be placed or removed easily...just flip the clips, no tools required.

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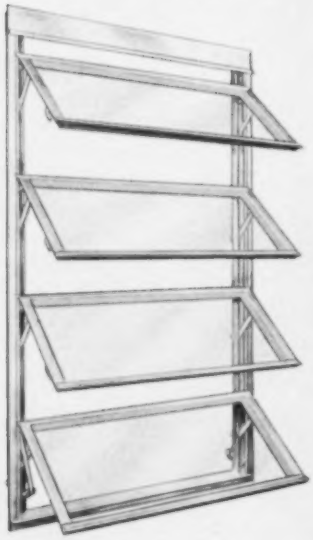
Auto-Lok

AUTOMATIC LOCKING — PATENTED

THE WINDOW THAT SETS A NEW STANDARD FOR WINDOW PERFORMANCE

The design of AUTO-LOK Aluminum Windows and the development of their patented, self-locking operating device, are the results of years of research by men who know windows and window problems. The materials that go into the manufacture of AUTO-LOK are the finest produced. The exacting workmanship is your final guarantee of windows that will meet the broadest specifications... *with many features to spare!*



WIDE RANGE OF STOCK SIZES AND ARCHITECTURAL TYPES TO FIT EVERY REQUIREMENT...

Only Auto-Lok *gives you*

ALL THESE FEATURES...

FRESH AIR WHILE IT'S RAINING

No more running to close windows...rain can't enter through slanting sash!

WARMER IN WINTER...

Seals itself shut like the door of your refrigerator...keeps heat in...cold out!

COOLER IN SUMMER...

Opens widest...scoops air inward and upward...luxurious ventilation, but no drafts!

PRACTICAL BEAUTY...

Narrow horizontal lines and graceful tilt of sash in every open position add distinction to any home...lend themselves to a wider variety of architectural arrangements.

EASIEST TO CLEAN...

Nothing to lift out...no sash to remove...no gadgets to disengage. Simply open wide and clean all glass from the inside ...top sash, too!

INTERCHANGEABLE SCREENS AND STORM SASH...

Can be handled all from the inside. Just flip the clips...no tools required. Reduce a day's work to an hour!

FRESH AIR NITE-VENT...

Bottom sash opens slightly for night ventilation, while upper sash remain securely locked ...fresh air circulation during bad weather, too!

FINGER-TIP CONTROL...

for a lifetime. Perfectly balanced, friction-free mechanism operates window at the touch of a finger. No adjustments ever necessary...never sticks, never rattles!

CONCEALED HARDWARE...

No unsafe, unsightly mechanism exposed to collect dust. Compact roto-type operator handle does not interfere with drapes, blinds, etc.

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ALL-AROUND LIGHTING IMPROVEMENTS

with Sylvania's New Industrial Fixtures

Announcing 222 New Industrial Fluorescent Fixtures at an amazingly new low cost. All are engineered to meet every lighting need in any type plant for any level of illumination. Customers make additional savings since new design also cuts maintenance costs.

Reasons for Sylvania's flexibility and lower cost

Simplified designing is the basic reason for the success of this new line. With one skillfully engineered reflector and two top housings, Sylvania lighting experts have developed 6 interlocking "family" groups of 24 standard fixtures each. These, with optional variations, making up 222 different types, offer a variety and flexibility never before possible.

And, because this line requires comparatively few different parts, die costs and assembly costs are held way down. These savings are now passed along to you in lower prices.

You'll want all the facts about this splendid new fixture line. The coupon brings you new folder and data sheets for your file.

Expert interior designs need expert interpretations . . . so for your lighting requirements, see the man who displays this Qualified Lighting Contractor emblem.

MAIL THE COUPON NOW!

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FLUORESCENT TUBES, FIXTURES, SIGN TUBING, WIRING DEVICES; LIGHT BULBS; RADIO TUBES; TELEVISION PICTURE TUBES; ELECTRONIC PRODUCTS; ELECTRONIC TEST EQUIPMENT; PHOTOLAMPS; TELEVISION SETS

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Please send me illustrated folder and data sheets on the new line of Sylvania Industrial Fixtures.

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VIEWS

(Continued from page 182)

enough to want to retire in a more conventional position.

Those wonderful tile floors—so clean, so efficient. But if anyone moves a piece of furniture, 10 rooms down, the squeal of the furniture leg on the tile is enough to rouse you out of the deepest slumber and send shivers down your spine. It was one of the most uncomfortable sounds that I had to live with while in this type of hotel. But that's not all! In one of my stays, a young lady (I assumed she was young although I never saw her) had a way of returning to her room at about three o'clock in the morning. The lady in question wore high heels and the sound of high heels tapping along those lovely tile floors, from closet to dressing table, from dressing table to bathroom, from bathroom to dressing table, until finally she was ready to retire, was another thing that kept us awake every night. Her nocturnal habits and her high heels are something I will never forget, when I think of clean efficient tile floors.

And now to talk of "Nature's own air-cooling system." Ah, yes! The tradewinds are wonderful—much better than draughty air conditioning, but—how can you get air and cut off light and sound! I have tried and I could not find the answer. If you kept the jalousies on the hallway side open, then at approximately eight o'clock in the morning the staff comes to work; housemen and maids with their mops and pails and their stories of how they spent the previous evening. Sound travels unhindered through the jalousies and, aided and abetted by smooth walls and tile floors, even a whisper could be heard. Try and sleep! Close the jalousies you will say—well, no sound—but no air. Try that in the tropics. That's not all! On the outside windows, the rooms are usually and considerately furnished with a drapery over the jalousies, but you cannot draw the drapery, because you cut off the flow of air through the room, so you leave the drapery open when you retire at night. At five or six o'clock in the morning, the sun "comes up like thunder" and floods the room with light. Some people, of course, can sleep in spite of noise and light. I, for one, cannot. So I get up and close and draw the draperies to shut out the brilliant tropical morning light. Do I go back to sleep? No. Within 10 minutes I am lying in a pool of perspiration. No breeze and you really suffer!

I did not mean and do not mean these criticisms to be harsh or offensive. If they do not sound quite politic, then you will have to attribute it to the fact, as I said before, I have never learned the gentle art of criticism, but the facts do remain. I think that architects should be made to live in their own hotels and find that some of those things which looked so good in photographs and sound so good in text are actually detriments, expedients which should not be encouraged or promulgated.

MORRIS LAPIDUS
New York, N. Y.

(Continued on page 190)

all sliding doors will do this

you like designing homes that open *wide* to let the *outdoors in...*

count on *glide* for this

but be sure the doors you specify will also shut the *outdoors out!*

you *CAN* with

Glide is the only horizontal sliding unit that has passed the rigid Air Infiltration test set up by the Pittsburgh Testing Laboratories, official testing laboratory for the Aluminum Window Manufacturer's Association. A copy of this report available on request.

Glide Windows and Doors are precision-built of the finest extruded aluminum, completely weather stripped with resilient stainless steel and polished to a fine satin finish.

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ALUMINUM WINDOWS AND DOORS
with the sideway slide
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For the complete story of Glide superiority in meeting the most exacting specifications see Sweet's File, Architectural or write for data.

DE LUXE (swirl marbleizing)

Only Armstrong's Asphalt Tile offers you this choice

STANDARD (directional grain)

Now you can specify Armstrong quality in two types of asphalt tile graining. The swirl marbleizing of Armstrong's De Luxe Asphalt Tile creates beautiful allover floor effects that cannot be achieved with any other type of graining. This tile also has superior strength and flexibility. Exclusive manufacturing processes interlock fibers and binders in two directions for greater strength, much as alternating the grain adds strength to plywood. The swirl marbleizing of Armstrong's De Luxe Asphalt Tile also speeds installation because it doesn't require twisting and turning to match grains.

For decorative effects requiring floors with directional graining, the Armstrong Line now includes Standard Asphalt Tile. You can design floors to suit any decorative scheme in which a straight-grained asphalt tile is preferred. Where price is the most important factor, Armstrong's Standard Asphalt Tile offers Armstrong quality at minimum cost.

Armstrong's De Luxe Greaseproof Asphalt Tile is available with swirl marbleizing. Armstrong's Standard Grease-Resistant Asphalt Tile is made with directional graining. For samples and complete specifications, write Armstrong Cork Company, 8906 State Street, Lancaster, Pennsylvania.

ARMSTRONG CORK COMPANY

GRANT SLIDING DOOR HARDWARE *of Course!*

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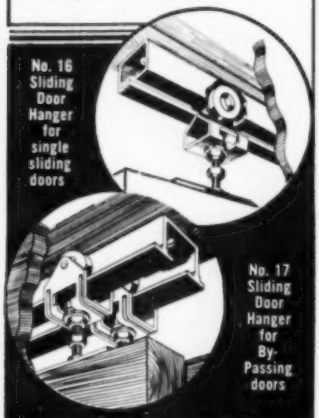

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VIEWS

(Continued from page 188)

pleased and satisfied

Dear Editor: I admire your magazine and appreciate all that you are doing. I study every issue from front to back. However, because of my intensive reading of the P/A and of my other periodicals, not to mention my social activities and studies, I find I get further behind in my reading, and magazines are crowding my desk, my files, and my book case.

It was my intention to let my subscription lapse and get up to date and then at that time consider renewing. I just glanced through the January issue to see what was doing and how and was pleased and quite satisfied with the issue. In fact, I decided that I couldn't afford to miss any of the forthcoming issues. I know I can't show my enthusiasm any better than to renew my subscription.

ALBERT H. TEBBS
Pittsburgh, Pa.

high level

Dear Editor: Each issue of P/A is getting better. You have reached a pretty high level, and we only hope you can keep it up.

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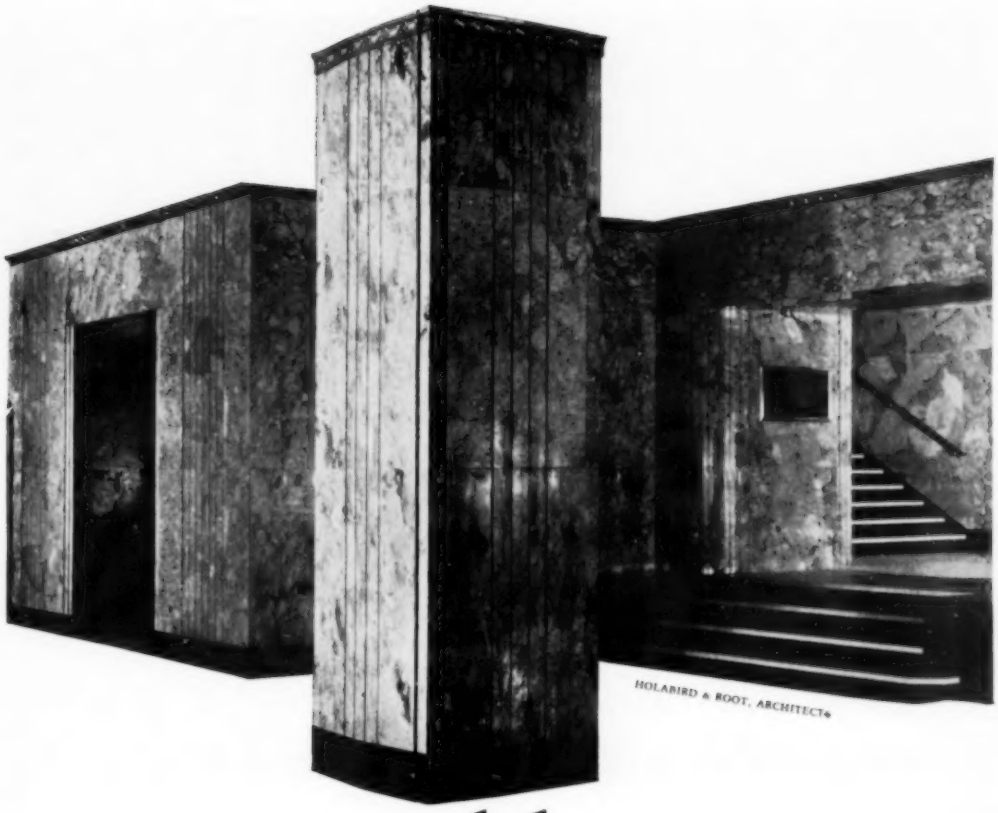

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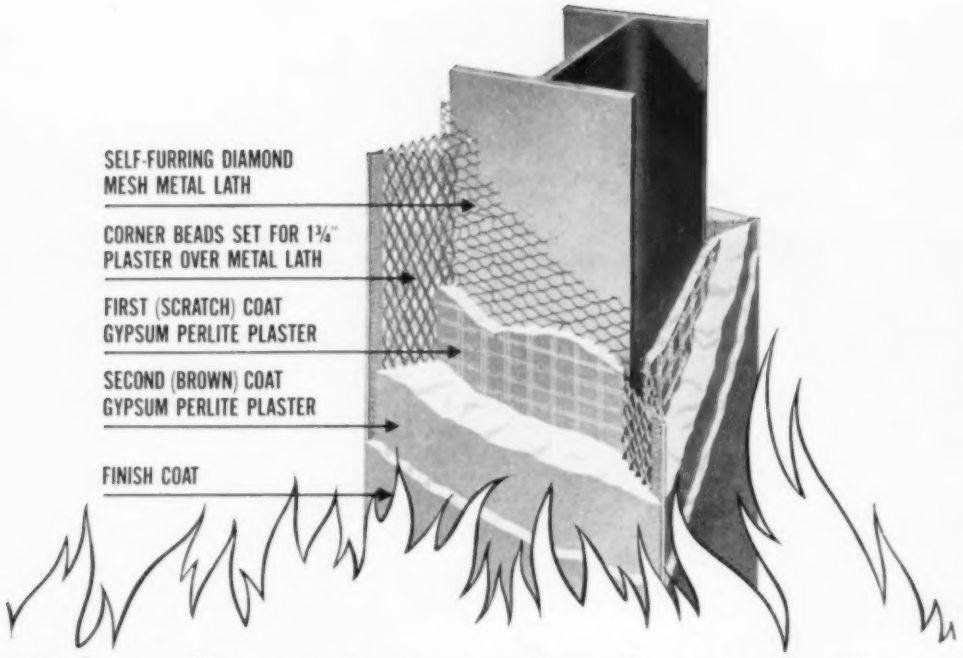
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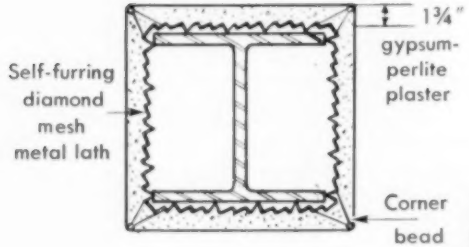

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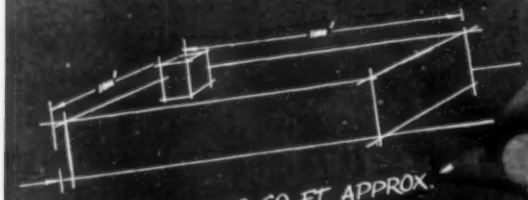

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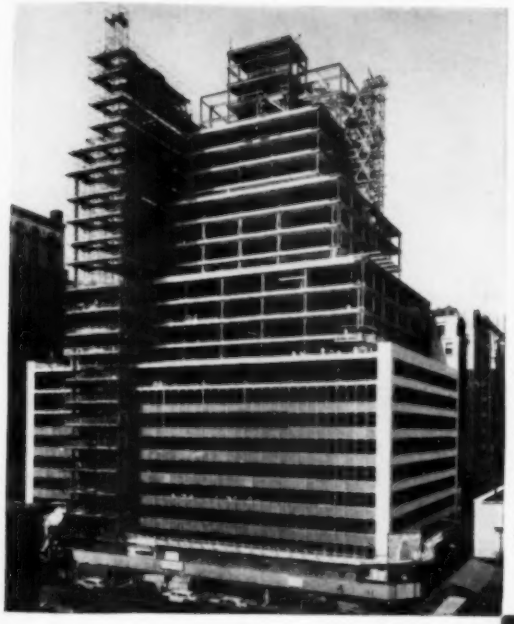

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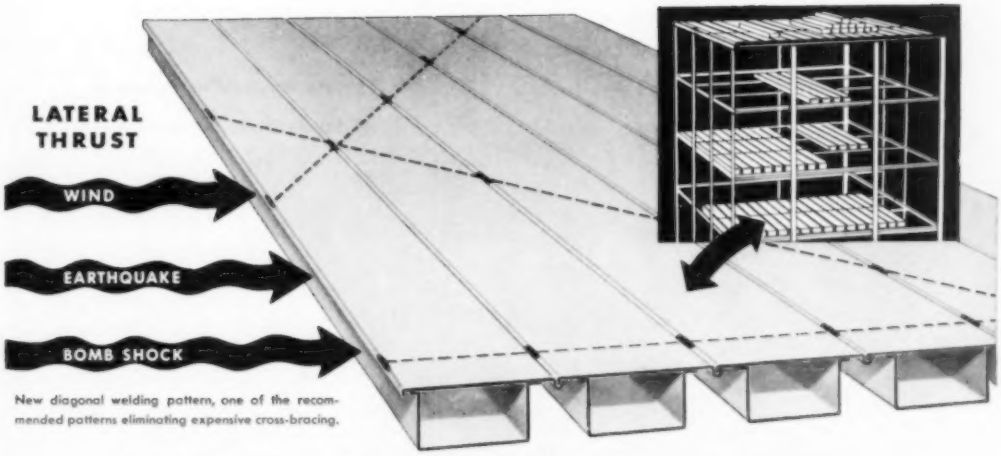

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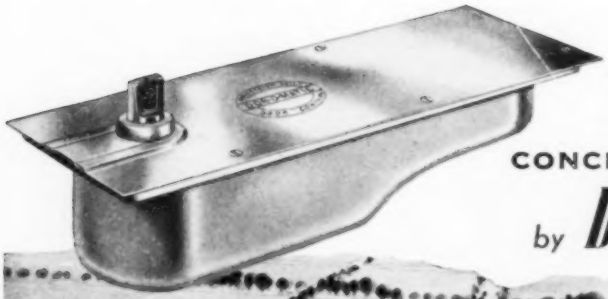

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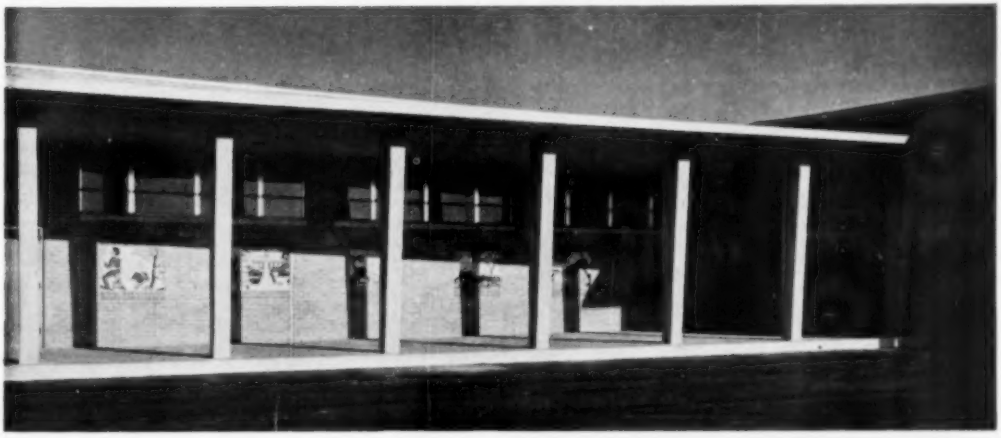

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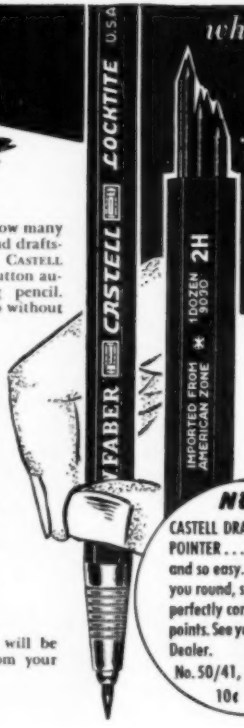

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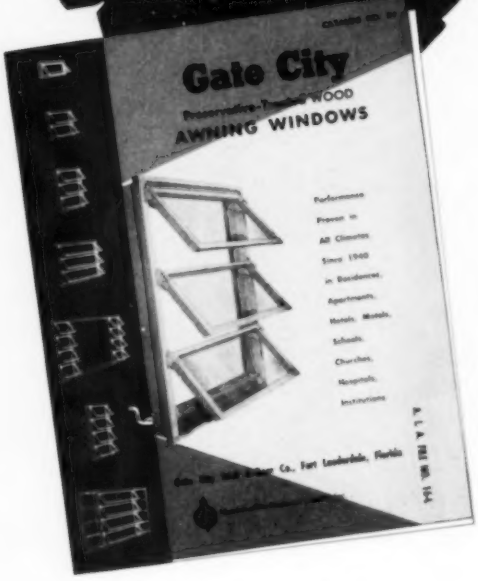

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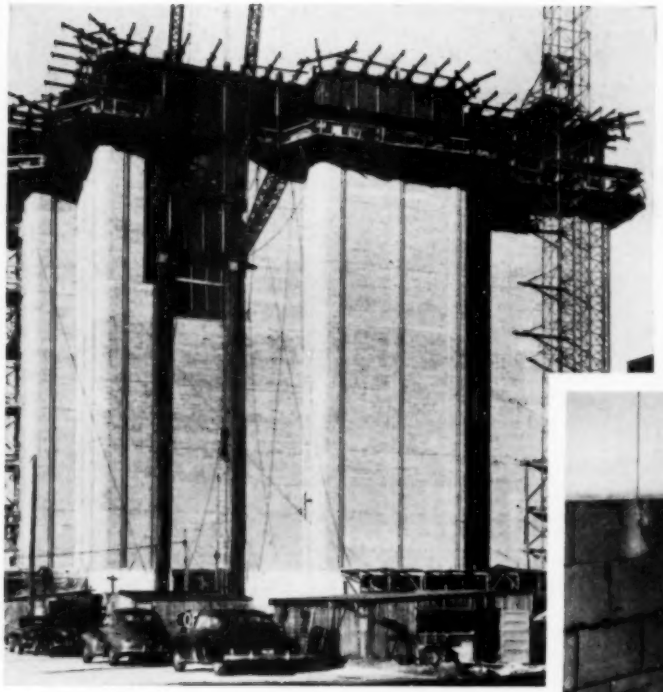

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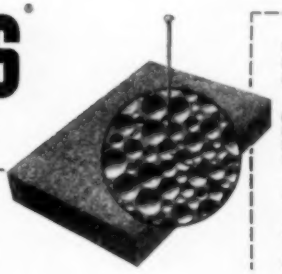

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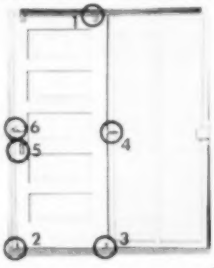

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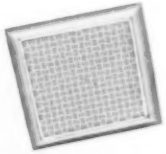

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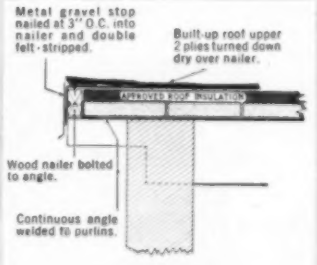
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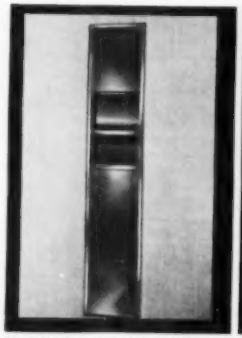

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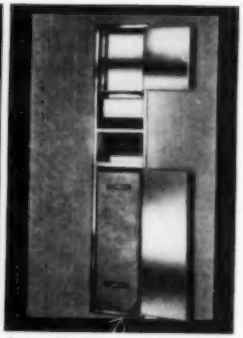

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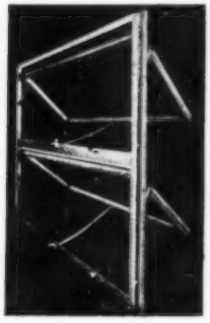

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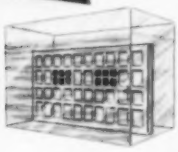

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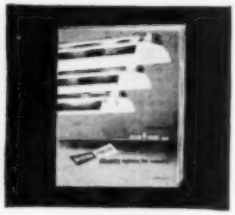

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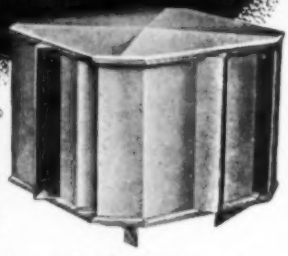

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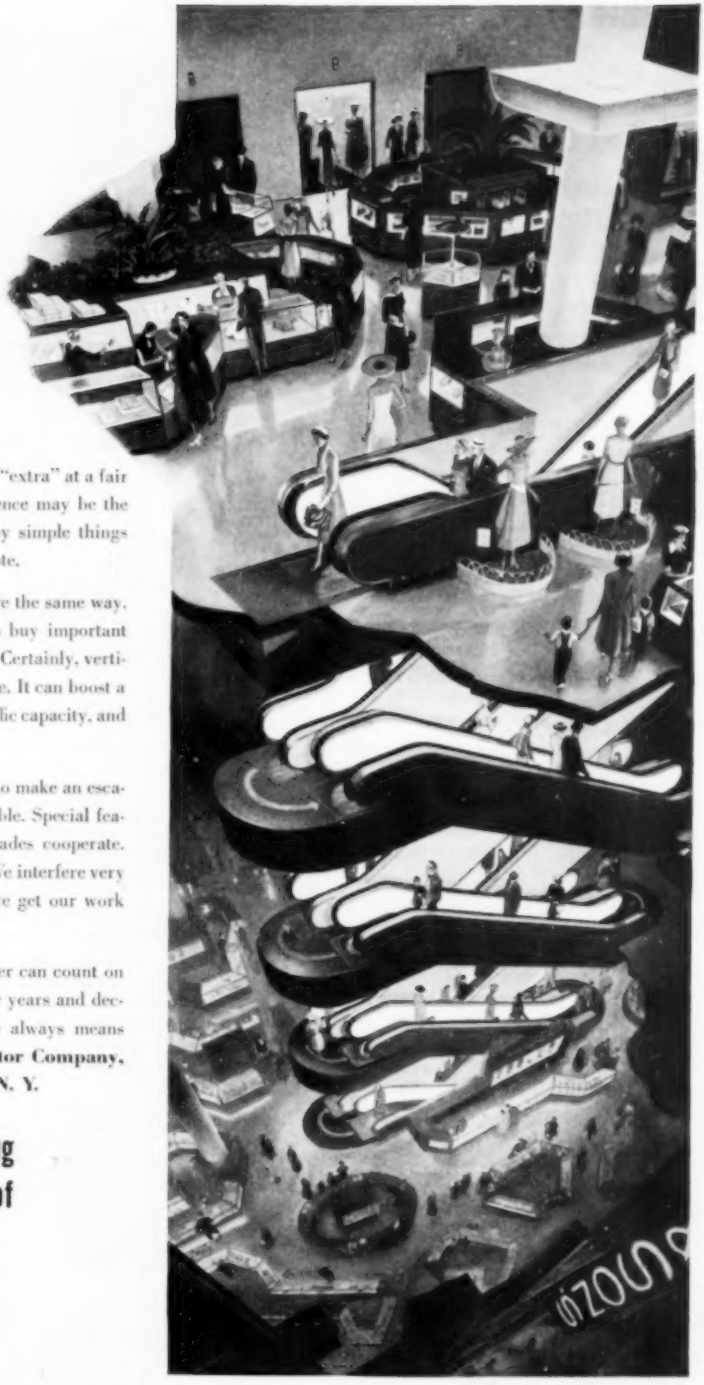

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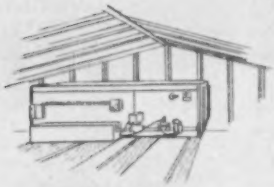
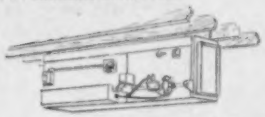


. . . installed in the attic



. . . or suspended under the floor

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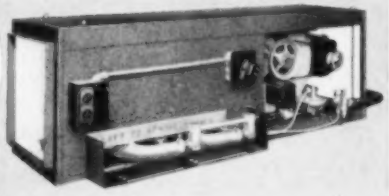
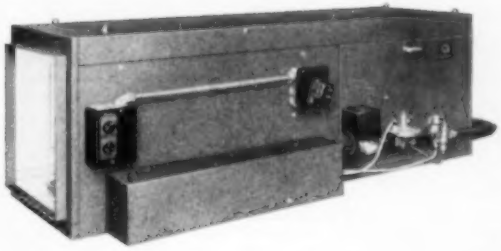


The PAWNEE
Winter Air Conditioner



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P.S.

P/A's NEWSLETTER commented last month on the sudden spurt in residential air conditioning, with several manufacturers introducing new units for this purpose and sufficient indication that there will be a large market in the near future to justify the formation of a new trade association for the "new" industry. This is an interesting development for several reasons. Its technical implications are important because an air-conditioned house requires a design adapted to—perhaps based on—the principles of introduction of "conditioned" air. But it also makes one think about the ways technological developments grow into industrial and commercial giants in the United States.

This business of residential air conditioning, which the industry members see as an important part of a potential $5 billion air-conditioning industry, is not something bursting new and unheralded on the American scene. The principles of tempering air, cleaning it, controlling humidity, odors, and circulation, have been understood for several decades; most of the essential equipment has been available almost as long. What is new, apparently, is the neater and smaller packaging of the units and the sudden realization that a huge market exists because house buyers and house builders in large numbers will now pay the extra costs involved.

For architects and engineers, I think it would be too bad to separate entirely the problems of residential air conditioning from comfort considerations in *every* type of building. For those who want to review the whole subject, because of the new interest in one phase of it, I recommend **P/A's** coverage in recent years. For general principles, Clifford Strock's *Air and Temperature Control*, (January 1947); Robert H. Emerick's two easy-to-read pieces, *Choosing the Right Heating System*, (September 1949) and *How to Choose a Comfort Cooling System*, (May 1950). For integration with other factors: Charles Leopold's two articles on *Panel and Air-Cooling Systems*, (March and April 1951); Bill McGuinness' piece on *Warm-Air Heating and Structure*, (September 1951); F. Honerkamp's article on *Duct Design*, (December 1948) and Leonard Phillip's one on *Air Diffusers*, (February 1947); *Odor Removal in Air-Conditioning Systems* by Kevin B. Magee (May 1951); and *Conspicuous Waste in Lighting and Air Conditioning*, by Samuel Adams Bogen (April 1950). For specialized applications, in addition to residential use: *Theatre*, (February 1952); *Office Building* (May 1951 and April 1952); *Shopping Centers* (this issue).

There have been many other discussions of the subject and many product reviews in the magazine, but this bibliography should enable the busy architect to review sufficiently to make the proper recommendation to Mr. and Mrs. Jones when they call on him next month.

●

Last month I attended a conference in Washington, called by the American Psychiatric Association for the purpose of discussing the design of mental hospitals. It was a good meeting, with a number of architects, a large group of psychiatrists and a scattering of hospital administrators, educators, and state hospital officials present. It may well mark the beginning of a serious collaborative study of this neglected subject.

During the course of the meeting several deep philosophical thoughts occurred to me, which I jotted down as notes now barely distinguishable. I am sure that any of the psychiatrists at the meeting would advise that I get them out of my system by passing them on to you long-suffering readers.

The first was a train of thought set up by a remark made by Dr. Kenneth Appel, Professor of Psychiatry at the University of Pennsylvania School of Medicine. If my notes are right, he said, "Most mental illnesses are due to an early traumatic environment." What a responsibility that throws back on the architect! And what great point it gives to the theme of this month's A.I.A. Convention—the importance of architecture in forming the environment for human activity. Each year thousands of persons in the United States become mentally ill—so ill they have to be hospitalized—because their physical environments have caused severe shocks to their mental and emotional balance. Then they are placed in institutions which constitute, in general, an environment so old and so badly designed that only careful administration and intelligent care makes it bearable. And then, after treatment has caused a readjustment of some sort, they go back—to another "traumatic environment?"

If architects, town planners, and psychiatrists could get together on this story, a sensational national case-history might be told, of social imbalance due not only to slums and blight but to badly conceived subdivisions, strip commercial developments, and all the rest. And on the other hand, an outlook of emotional peace *might* be envisioned through thoughtful redevelopment, well-planned new towns, shopping centers, industrial and office-work environment that induces well-being and interest in one's job. Unless the "mental patient's" environment is thus conceived and planned, aren't we wasting much effort in the design of space that is merely a resting place between traumatic environmental experiences?

The second thing that occurred to me has to do with the method of collaboration between the architect and a very special and specialized sort of client—such as a psychiatrist. During the course of the meeting a number of architects made the point, which always needs to be made, that such a client, no matter how tempted by his intimate knowledge of the subject, should refrain from *drawing*, and from every other manner of physical visualization. He should, as one architect put it, describe the program and the functions—no more. Slocum Kingsbury made the point in an amusing way by saying that too many clients wanted to take his pencil away from him, and he had to explain to them that an architect could never part with his pencil, or he was lost.

But then I felt that the architects present were carrying the argument too far. There was too sharp a distinction being made, between the statement of the program (the client's major responsibility) and the translation of that program into drawings which can become a physical structure (the architect's function). If the line is too clearly marked with no-trespassing signs on both sides, the danger is a situation where the client can say with some truth, "I told my architect exactly what to do; he just drew up the blueprints," or the equally bad situation where the architect says, "After all, I have to give my client what he wants, don't I?"

I believe that a better solution is one where the architect has an enlarged function and the client a greater responsibility—a true collaboration all the way through the planning process. If you have read the very clear definition of how a shopping center comes into being, in this issue, I think you must agree that the *program* grows as a collaborative study made by many people, including the architect. The very statement of needs and the study of functions are analyses for which an architectural designer is particularly trained. They should not be handed to him as a written program, in the development of which he has had no part, any more than they should be given to him in graphic form. And to carry the collaboration through later steps, the client should certainly not bow out, once the program has been determined. Especially in the case of building types in process of evolution (shopping centers and mental hospitals, among them), the person or the group who will use the building should be free to suggest and criticize through the design period.

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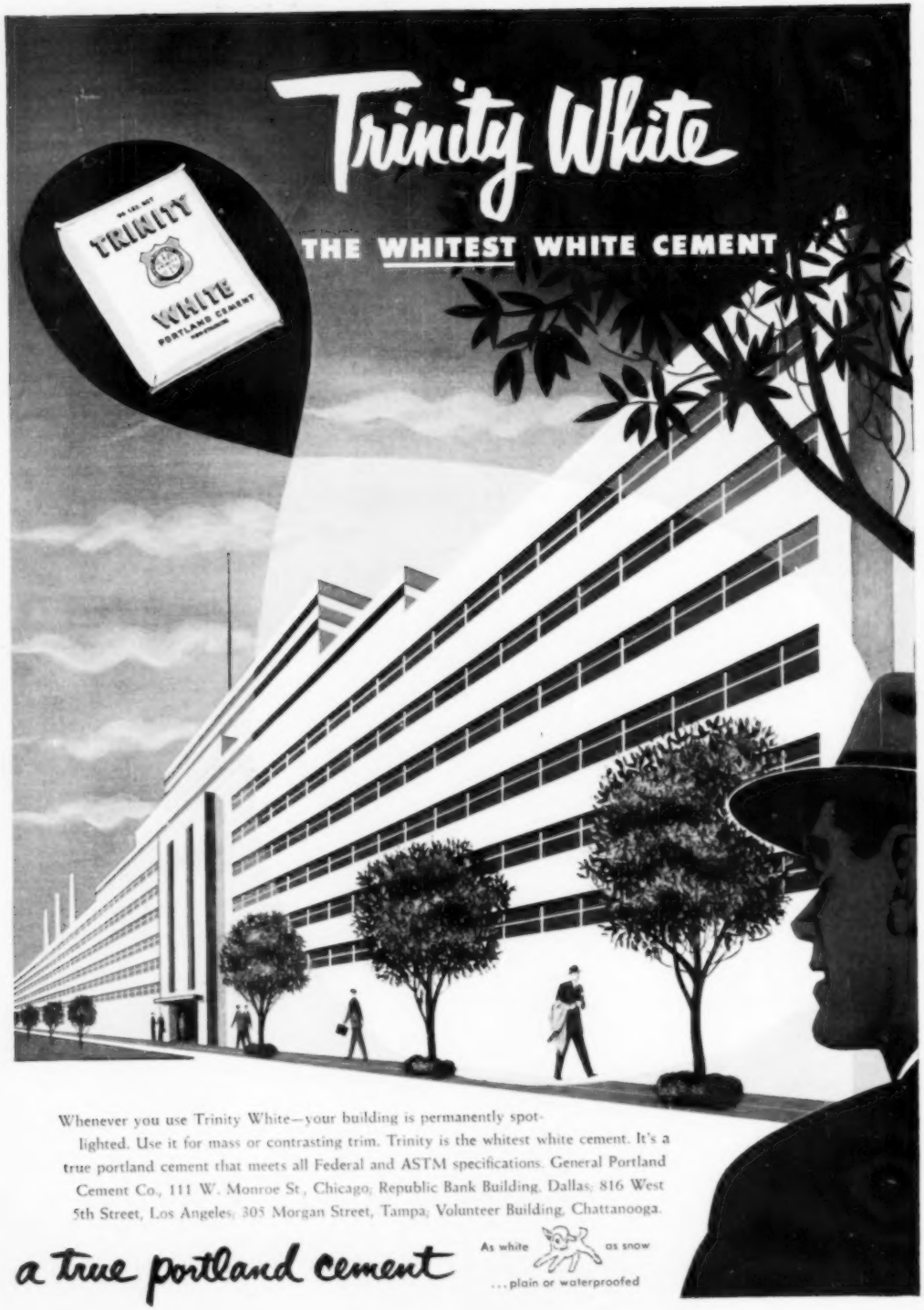

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